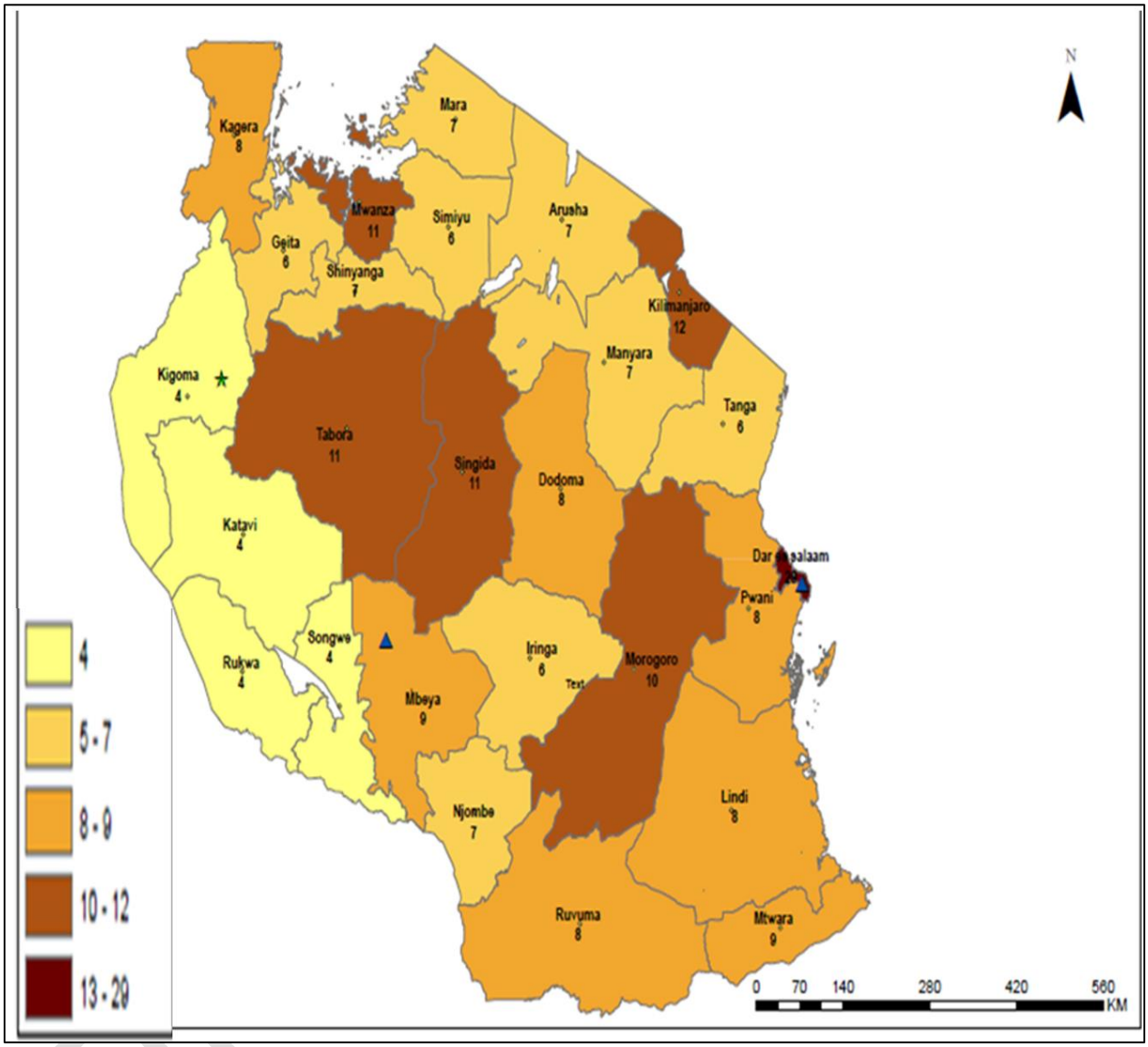
The National Tuberculosis and leprosy Programme

Annual report for 2018

National TB and Leprosy Programme (NTLP)
Department of Preventive Services
Ministry of Health, Community Development, Gender, Elderly and Children

Number of Gen Xpert Machines in Tanzania Mainland by December 2018



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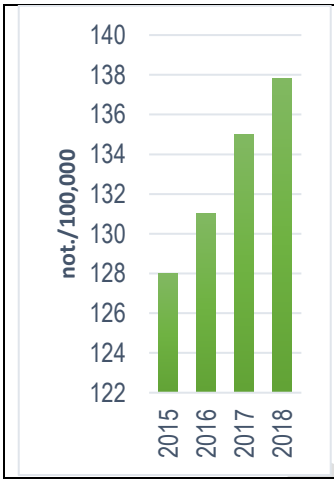
2018 PERFORMANCE AT A GLANCE

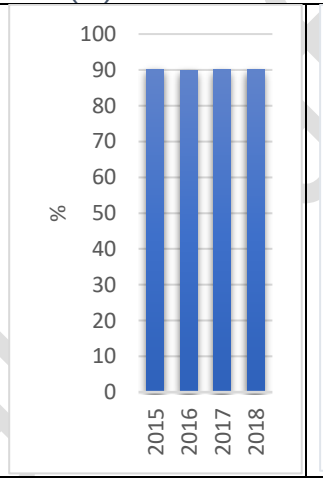
Key Indicators	Target	Achievement	Performance
Number of All TB Patient notified	77,509	75,845	98%
Percentage of All Paediatric TB patient notified	14%	14%	101%
Number of MDRTB patients Notified	511	449	88%
Number of MDRTB patients enrolled in care	460	409	89%
Percentage of TB patients tested for HIV	100%	99%	99%
Percentage of HIV positive TB patient on ART	100%	98%	98%
Percentage of notified TB cases all forms contributed by Community referrals	19%	17%	89%
Percentage of notified TB cases all forms contributed by Private health facilities	12%	19%	158%
Proportion of new patient with Leprosy Disability grade two	8%	11%	73%
Percentage of children notified with Leprosy among new cases	3%	3%	100%

Trend of the Key Indicators

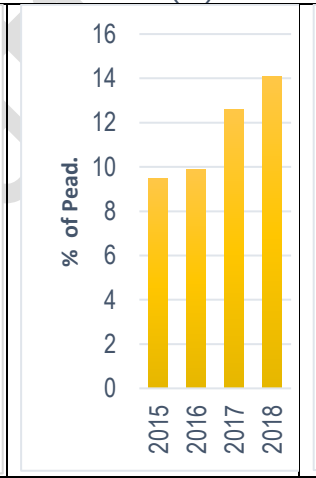
Case Notification Rate



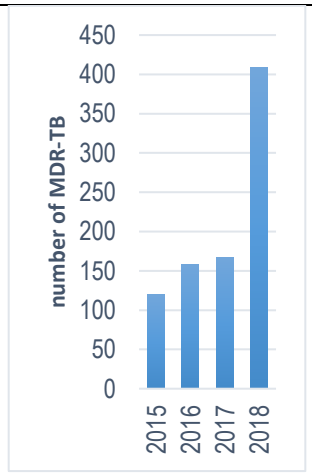
Treatment Success rate (%)



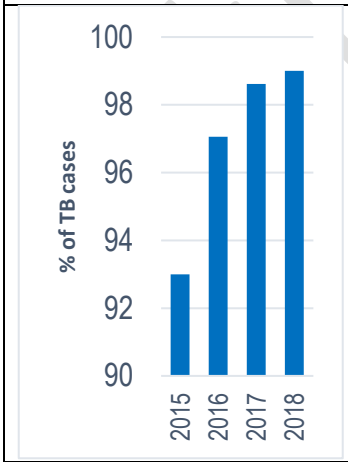
Paediatric TB notification (%)



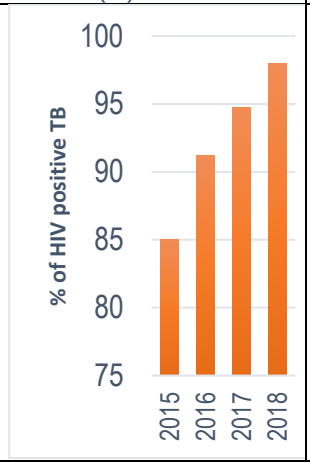
MDRTB Patients enrolled in care



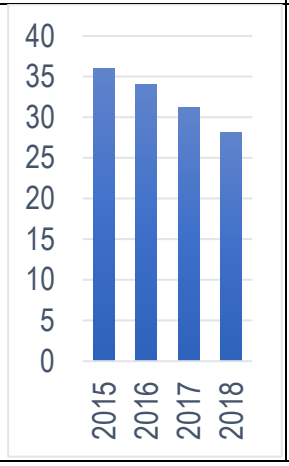
TB patients tested for HIV (%)



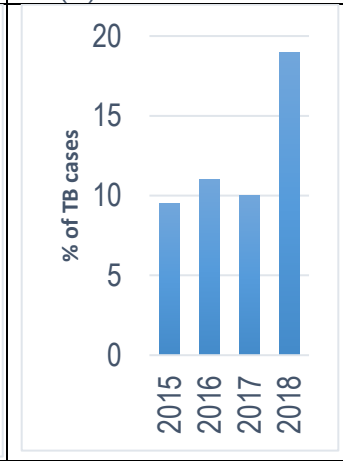
HIV positive TB patients on ART (%)



TBHIV patients (%)



Private facilities contribution in TB (%) notification



Acknowledgement

The successful completion of this Annual report for the year 2018 was made possible by joint efforts from a number of dedicated individuals at facility, regional and national level. The data presented is generated by the health workers, verified and validated by the district TB and leprosy coordinators under the supervision of the regional and national levels officers.

First, I want to thank the Monitoring and Evaluation Unit within the central level for their dedication in ensuring accuracy of the reported data. I also like to thank the health workers at regional, district and health facility levels who by recording and timely reporting has made possible the contents of this report. 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. I would like to recognize, in particular, The World Health Organization (WHO), The Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria (GF ATM), Centre for Disease Control (CDC) United State Agency for International Development (USAID), Global Drug Facility (GDF), Germany Leprosy and Tuberculosis Relief Association (DAHW/GLRA), International Organisation for Migrant (IOM) 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 2019

1 GENERAL BACKGROUND

1.1 Demographic and social economic profile

The National Bureau Statistics (NBS) projected the population of Tanzania for year 2018 to be 54,199,163. According to projected population, female make up is 51% of the total while male is 49%. The population of urban inhabitant was 29.6 % of total population. About 44% or 23,667,667 are young aged 0 – 14 years while 3% are elderly 65 and above years. 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.

According to World Bank report, 2018 per capita income (GDP per capita) is US $ 1,050.7 categorizing Tanzania as a low-income country. However, in the past five years the country has enjoyed good progress in economic growth averaging above 6%.

1.2 Summary of health services

Health care delivery system in the country is well established with 7,819 functional health facilities comprising of 285 hospitals, 834 Health centres and 6,700 Dispensaries. The major provider of health services is the government, which own or run 70.6% of all the health facilities. Tanzania is classified as one of the least developed countries, with total expenditure on health per capita of US$ 137 (WHO).

Tuberculosis and leprosy control services are divided into three major categories which are case finding, diagnosis and treatment services. In 2018 there were 3,512 health facilities providing Tuberculosis treatment services and have a TB unit register, these health facilities are known as DOT centres. Among these DOT centres 1,200 health facilities provided TB diagnosis by at least a microscopy service. There were 1,500 health facilities that provided leprosy treatment services and have a leprosy unit registers. These facilities are known as MDT centres.

1.3 Summary of NTLP 2018 activities

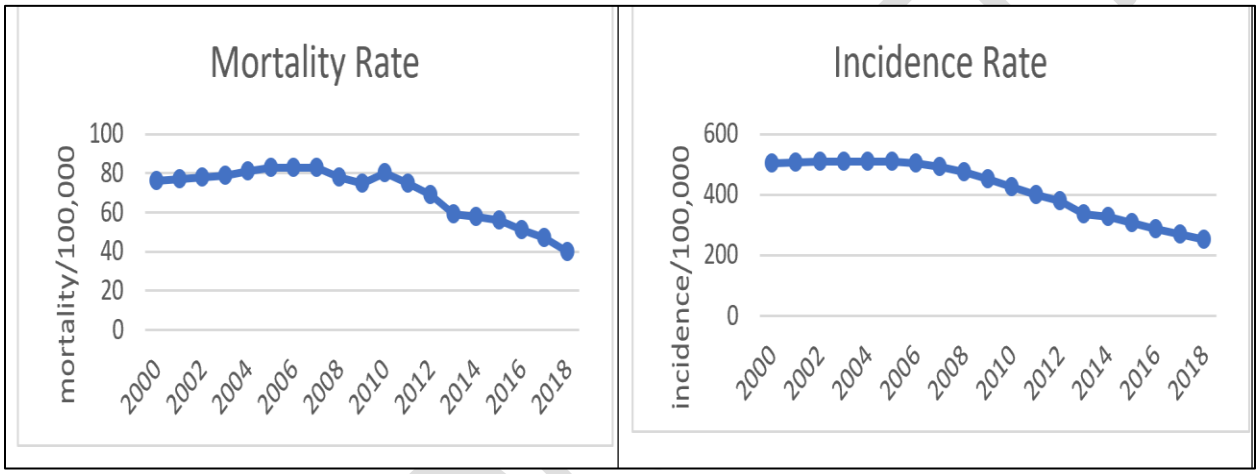
The National TB and Leprosy Program is current in its third year of the implementation of the fifth TB and Leprosy Strategic Plan. This coincide with the implementation of the third year of the HSSPIV. The main objectives of these plans have been to reduce the burden of the two diseases by ensuring access of quality services through availability of diagnostic services and case findings interventions.

The major milestones to date include the expansion of the use of the new technology for the TB diagnosis by GenXpert machines, from 95 to 222 machines in 114 District councils (61%) (114/184),Decentralisation of MDRTB services from 22 to 81 centres involving 90% of the regions and scaled up of motorcycle use for sample transportation from 5 regions to all 26 regions in the country.

The contact tracing of the leprosy is still going on in Geita, Lindi, Morogoro, Mtwara and Tanga regions. The country has expanded efficient microscopy machines (LED) in all health centers and hospitals.

The TB incidence has fallen from 306 per 100,000 population in 2015 to 253 per 100,000 in 2018. Indication a 17% reduction of TB Incidence rate. This makes Tanzania being among the 7 TB high burden countries which are on track to achieve the End TB 2020 Incidence milestones there has been a 19% reduction in TB mortality from 58/100,000 in 2014 to 40/100,000 in 2018.

Figure 1: Mortality and Incidence Rate



1.4 Financial Support

The Ministry of Health Community Development, Gender, Elderly and Children through National Tuberculosis and Leprosy Program (NTLP) received approximately USD **20,020,432.74** through external grants in year 2017. Government resources channelled to the program for program management as infrastructure, maintenance and staff remuneration at all levels of the implementation of the Program interventions.

Table 1: NTLP Source of Funds 2018

N0	Source	Amount (TZS)	Amount (USD)
1	Global Fund	44,351,489,608.20	19,318,954.42
2	CDC/PEPFAR	1,610,418,846.50	701,478.32
Total		**45,961,908,454.70**	**20,020,432.74**

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 TUBERCULOSIS CONTROL

2.1 Tuberculosis case notification in 2018

In year 2018, a total of 75,845 cases of all forms were notified, which is an increase of 6,205 cases or 9% compared to the year 2017. New and relapse TB cases notified were 74,692 among them, 48% were bacteriological confirmed TB cases, 79% were pulmonary TB cases and children among the new and relapse cases were 14%. Table 2 below shows the comparison of TB notification in 2017 and 2018 by TB classification groups.

Figure 2: Trend of TB Notification 2012-2018

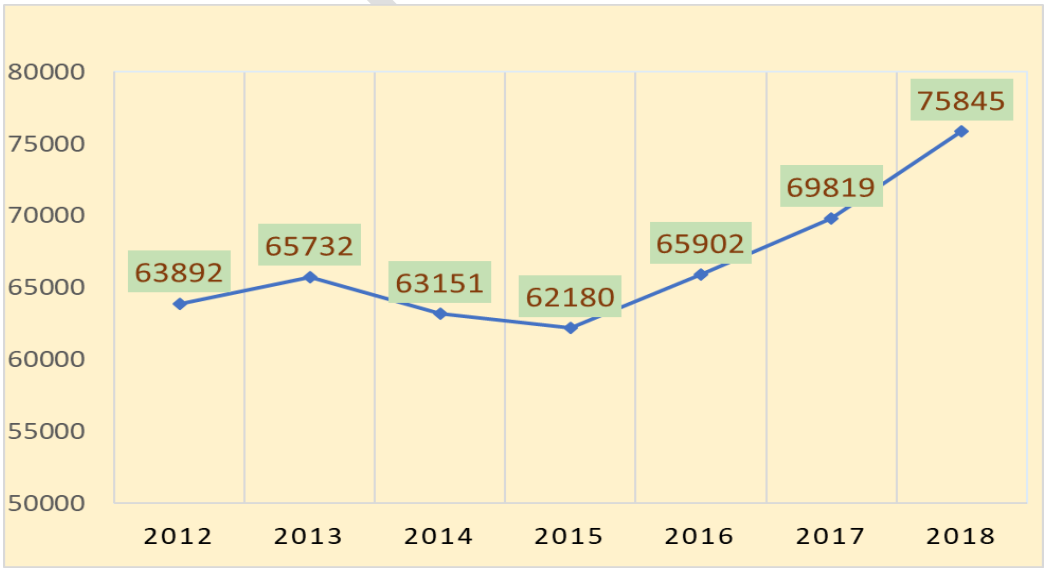


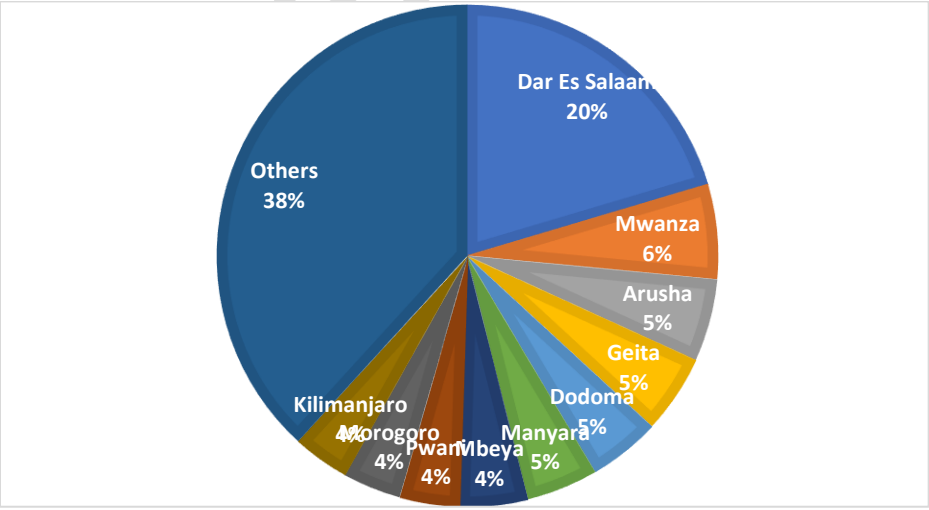
Table 2: Tuberculosis cases notified in Tanzania 2017 – 2018

Indicators	2017		2018		Change	
	Cases	%	Cases	%	num.	%
All forms	**69,623**		**75,828**		**6,205**	**9**
New Cases						
- Pulmonary bacteriological confirmed TB cases	26,364	38	27,201	36	837	3
- Pulmonary clinically diagnosed TB cases	25,951	37	30,302	40	4,351	17
- Extra-pulmonary (all forms)	13,780	20	15,353	20	1,573	11
Total	**66,095**	**95**	**72,856**	**96**	**6,761**	**10**
Previously treated						
- Relapse	2,178	3	1,836	2	-342	-16
- Failure	145	0	107	0	-38	-26
- Return after lost to follow up	302	0	303	0	1	0
- others	903	1	726	1	-177	0
Total	**3,528**	**5**	**2,972**	**4**	**-556**	**-11**
Total new and relapse cases	**68,273**	**98**	**74,692**	**99**	**6,419**	**9%**

2.1.1 Tuberculosis notification by regions

Dar es Salaam city has remained a major contributor of TB cases notification in Tanzania. Its contribution makes 20% of all cases notified in the country, a 1% decline as compared to year 2017. There was considerable regional variation as in the previous years with 50% of cases being contributed by 7 regions - Dar-es-Salaam, Mwanza, Arusha, Geita, Dodoma, Manyara and Mbeya.

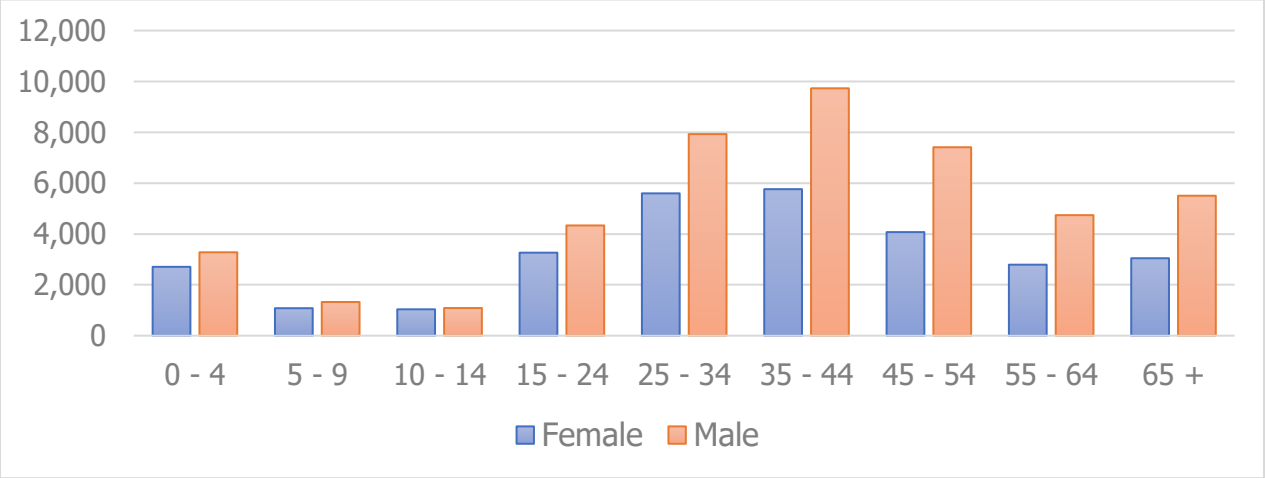
Figure 3: Distribution of TB cases notified by regions in 2018



2.1.2 Tuberculosis case notifications disaggregated by sex and age

The age-sex distribution of the new and relapse TB cases notified in 2018 shows that 45,336 (61%) cases were males and 29,356 (39%) were 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 10,513 (14%). 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 4 below.

Figure 4: Age and Sex distribution of new and relapse TB cases notified in 2018



2.1.3 Tuberculosis notification rate

The country TB notification rate has been increasing for the last four years: 2015 to 2018, but there is still variation among the regions. In 2018, sixteen regions including the islands of Unguja na Pemba have notification rate below the national average of 138 cases per 100,000 population.

Figure 5: Notification rate of new and relapses TB cases 2018

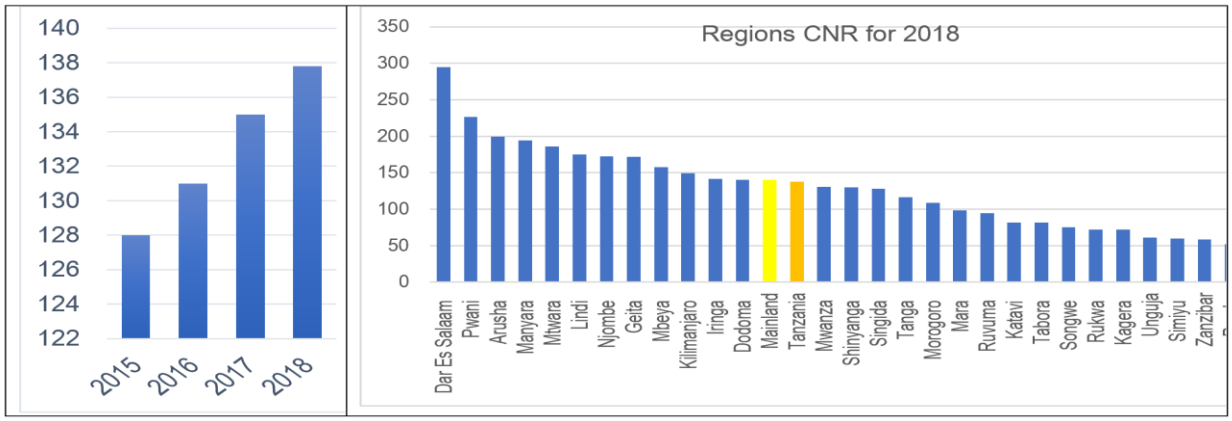
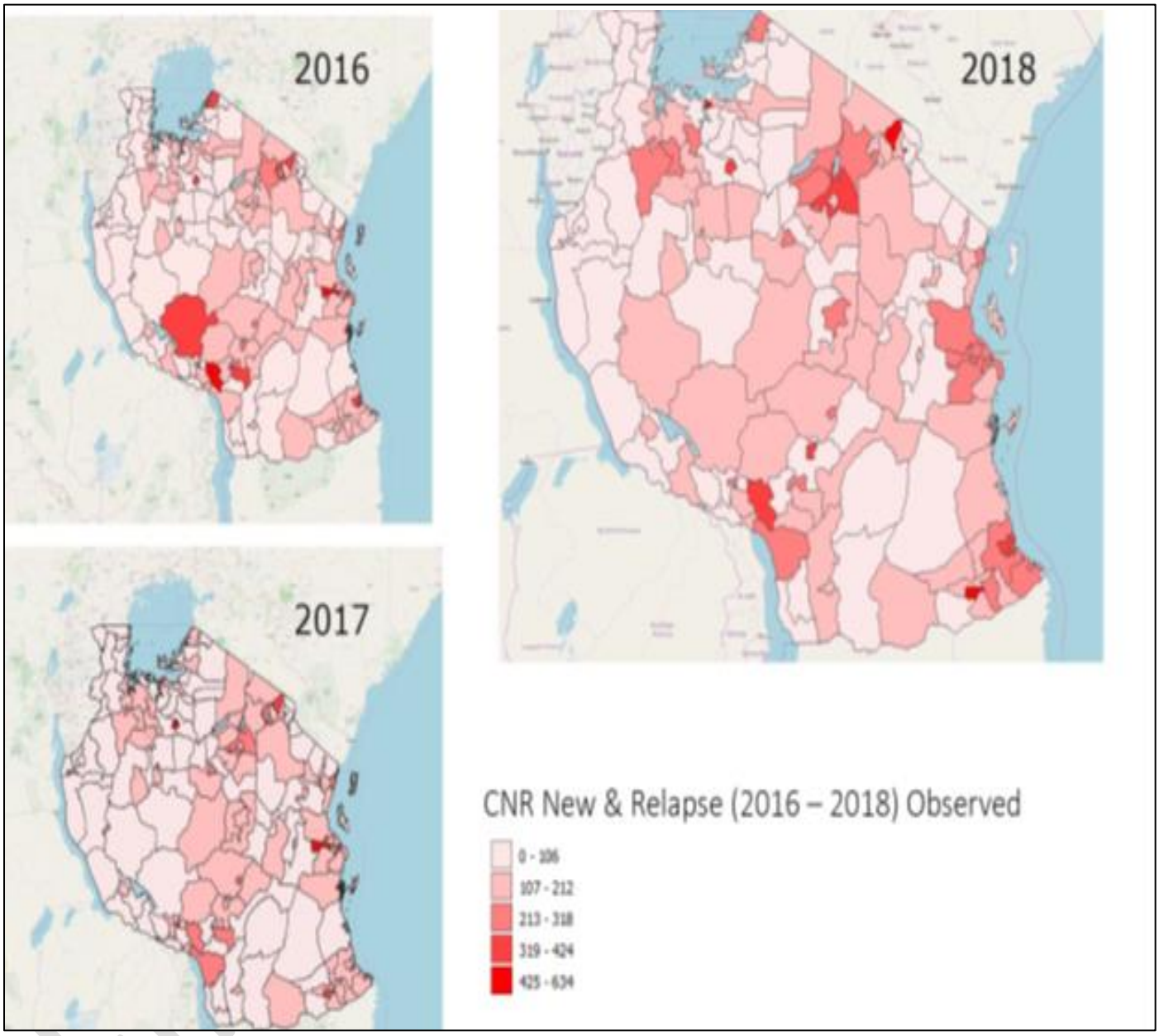


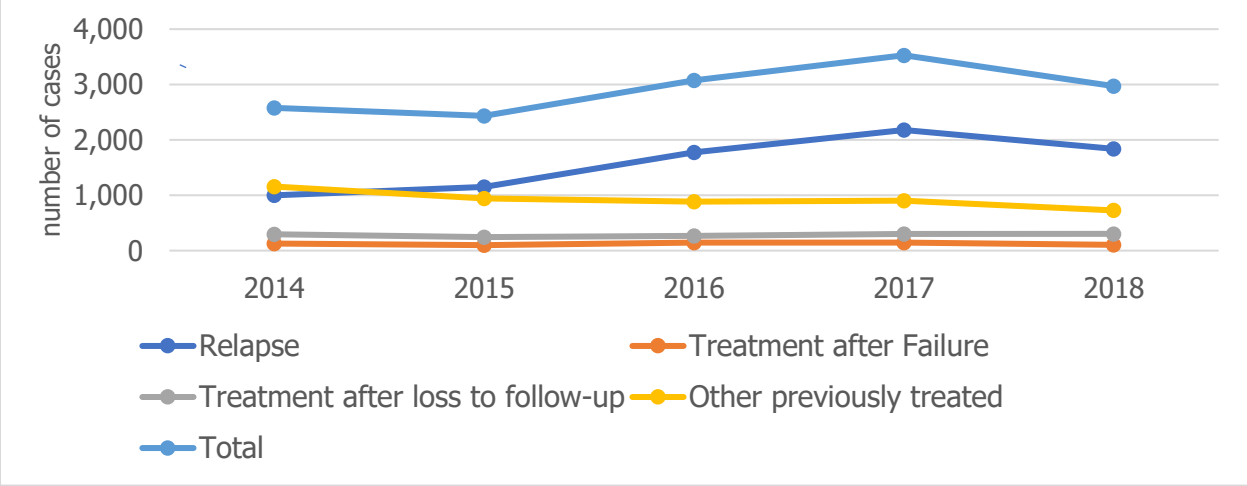
Figure 6: CNR New and Relapse 2016-2018



2.1.4 Previously treated cases of Tuberculosis

Previously treated TB cases (including relapse cases) notified in 2018 were 2,972 cases which is 16% decline as compared to year 2017. The proportion of previously treated TB cases among all TB cases is also falling as in 2018 was 4% compared 5.1% in 2017. Figure 4 below shows trends of Previous treated TB cases by categories.

Figure 7: Trends of Previously Treated TB cases notified from 2014 to 2018



2.2 Tuberculosis treatment outcome for cohort notified in 2017

2.2.1 New and relapse cases

The treatment success rate of the new and relapse notified in 2017 was 90% which maintained in the last ten years. Other treatment outcome shows death rate at 4%, while failure rate and lost to follow up remained at 0.2% and 1.2% respectively. The remaining 4.5% or 3,097 cases their treatment outcomes were not available at the end of the reporting period.

Figure 8: shows treatment success by regions while figure 5 shows trends of treatment success rate for the last five years.

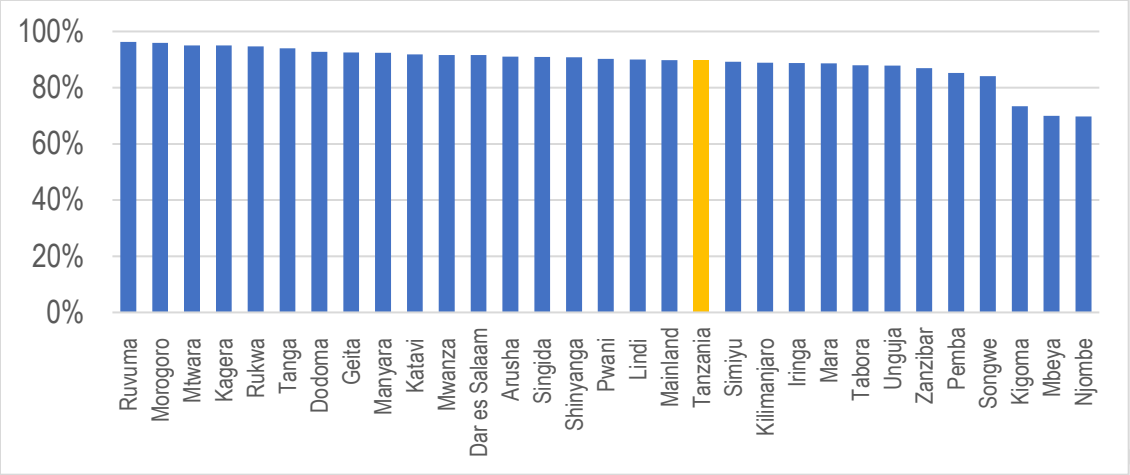
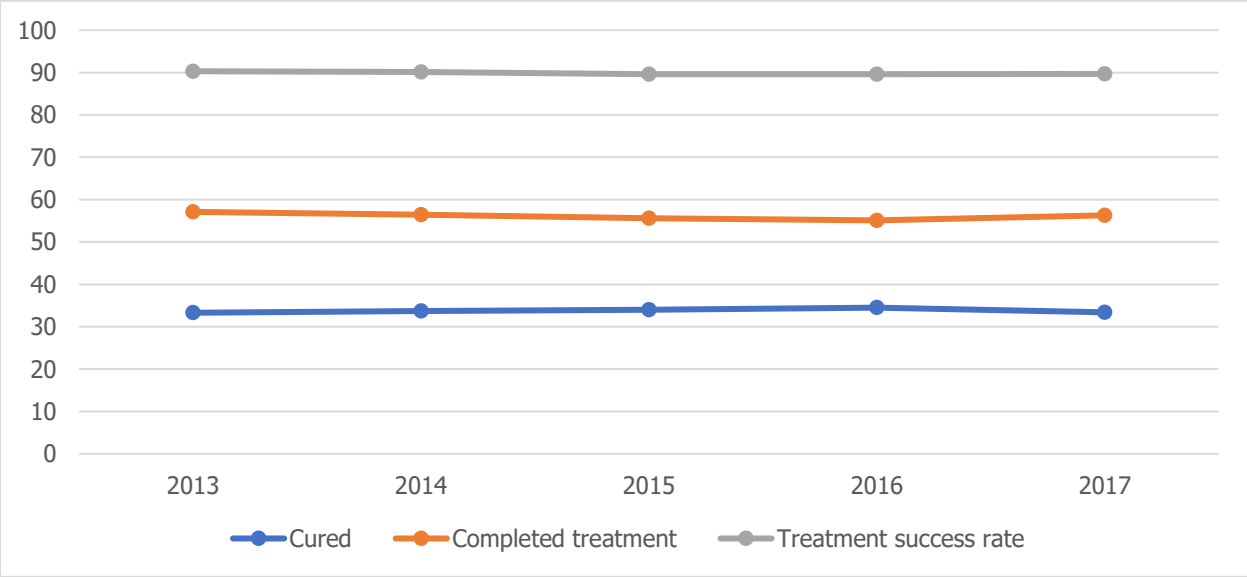


Figure 9: Trends of Treatment success rate of new and relapse TB cases notified: 2013 to 2017



2.2.2 Treatment outcome of previously treated TB cases notified in 2017

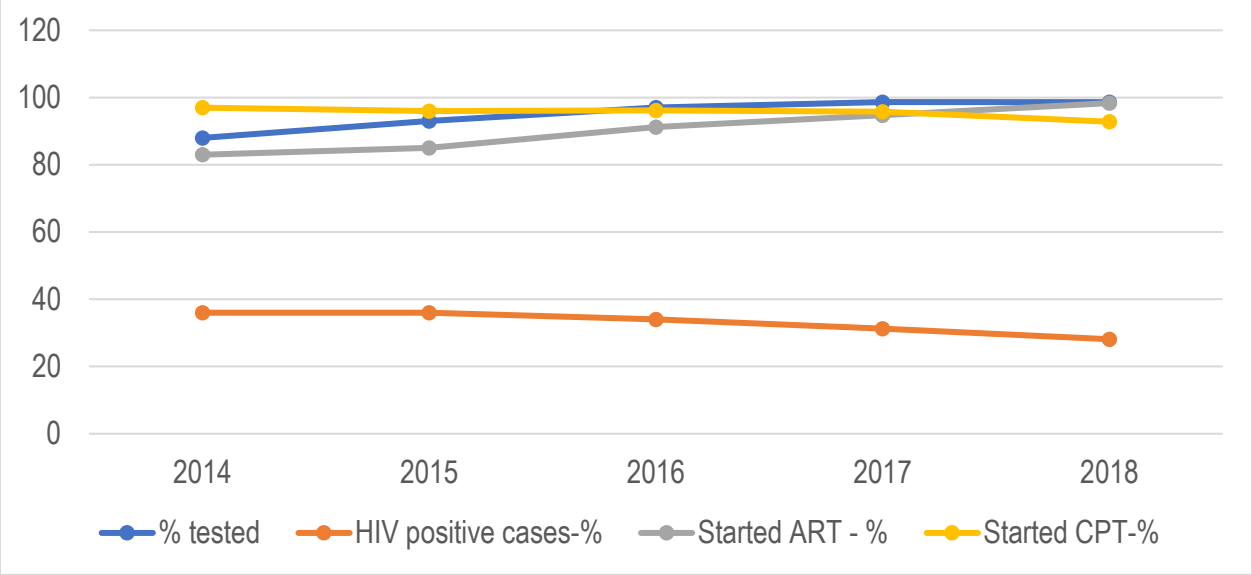
In 2017, 1,213 previously treated TB cases excluding the relapse were initiated a first-line TB treatment regimen, 1,166 (96%) cases their treatment outcomes are available. Among the evaluated cases: 1,023 (84%) were treated successfully; 8 (0.7%) failed treated while 103 (8%) cases died while in still on TB treatment. Number of TB cases lost to follow up were 32 (3%) of all previously treated cases.

2.3 Collaborative TB/HIV

2.3.1 TB/HIV case finding in 2018

In the year 2018, 73,669 (99%) of new and relapse cases notified had their HIV test results recorded at time of notification. Among the tested, 20,714 (28%) were tested HIV positive. The co infection rate has decreased from 31% in years 2017. Furthermore, analysis shows that among co-infected cases 20,371 (98%) cases were initiated or were on ART at both TB clinic and CTCs and 19,226 (93%) were put on Co-trimoxazole Preventive Therapy (CPT). Figure 5 below summarizes the trend of TB/HIV indicators in the country for the last five years: 2014 to 2018. In the figure, it shows that uptake of ART as increased from 83% in 2014 to 98% in 2018.

Figure 10: TB/HIV cascade of services Indicators 2014 to 2018

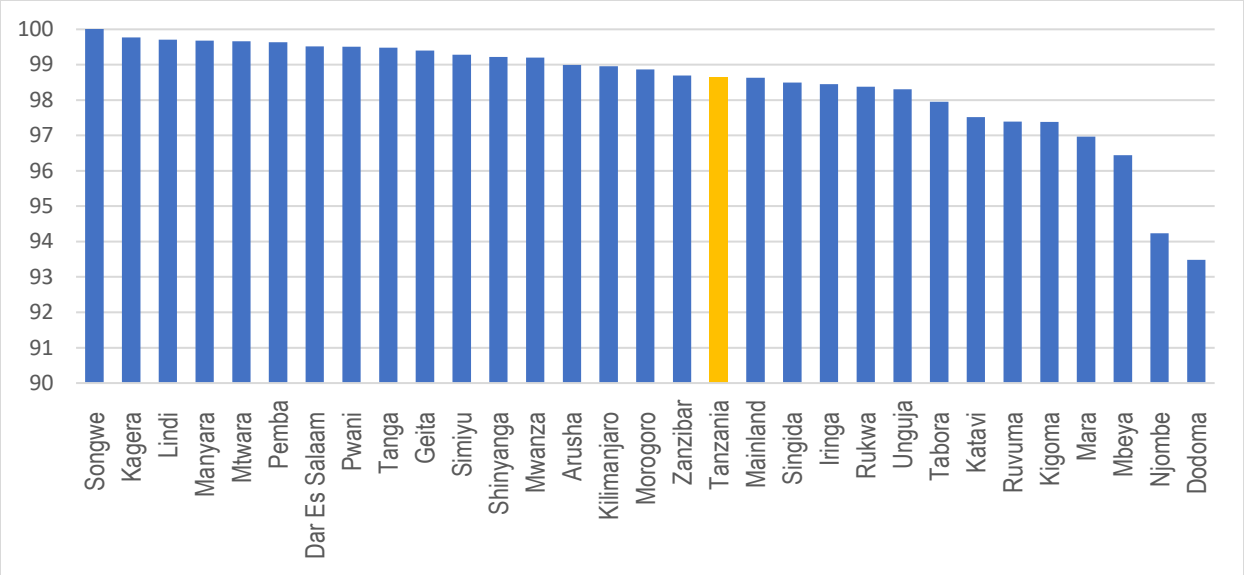


The focus during this reporting period was to strengthen HIV services among co-infected patients. There was extensive countrywide capacity building to health care workers in the area of TB/HIV care. This was a collaborative effort between the Ministry (NTLP &NACP) and TB and TBHIV Implementing partners.

2.3.2 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 2018 the national average was 99% 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 11: HIV testing among TB patients in 2018 by regions



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2.4. Paediatric TB

2.4.1 Childhood TB notifications 2018

There has been a notable increase of proportion of children under the age 15 year being notified among new and relapse TB cases. In 2018, a total of 10,513 children were notified with TB which is 14% of all cases. Among children (under 15 years) notified: 5,986 (57%) were children under the age of 5, while 2,404 (23%) cases were children between age group of 5 -9 years and 2,123 (20%) were children in the age-group 10 – 14 years. Figure 8 and 9, shows proportional of children among notified TB cases per region and trends for the last four years respectively.

Figure 12: Proportion of Children under 15 years among notified TB cases: 2018

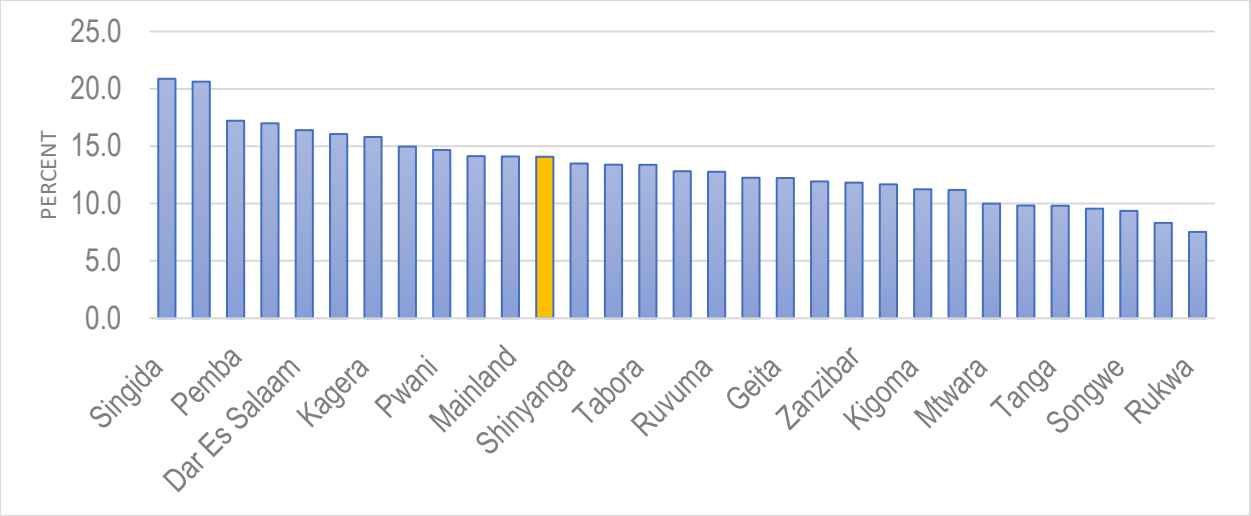
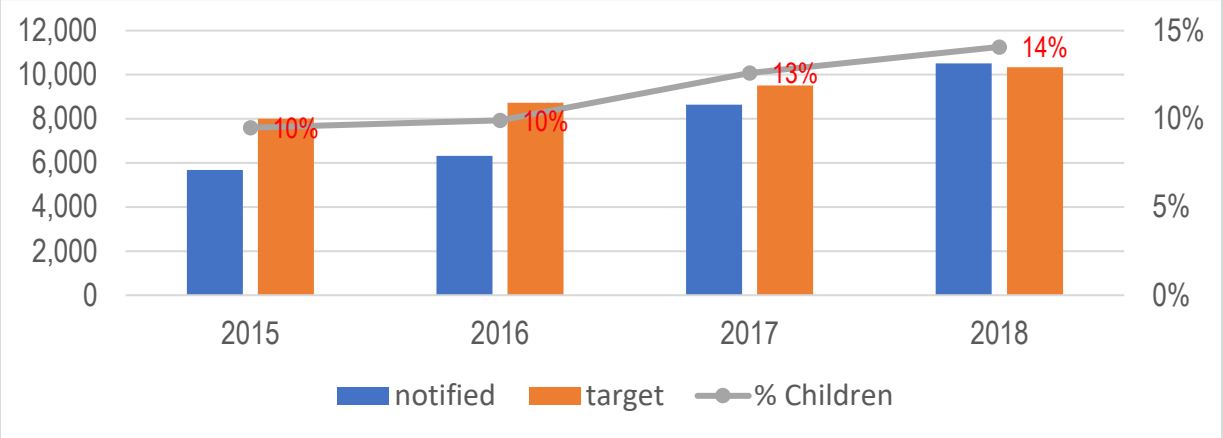


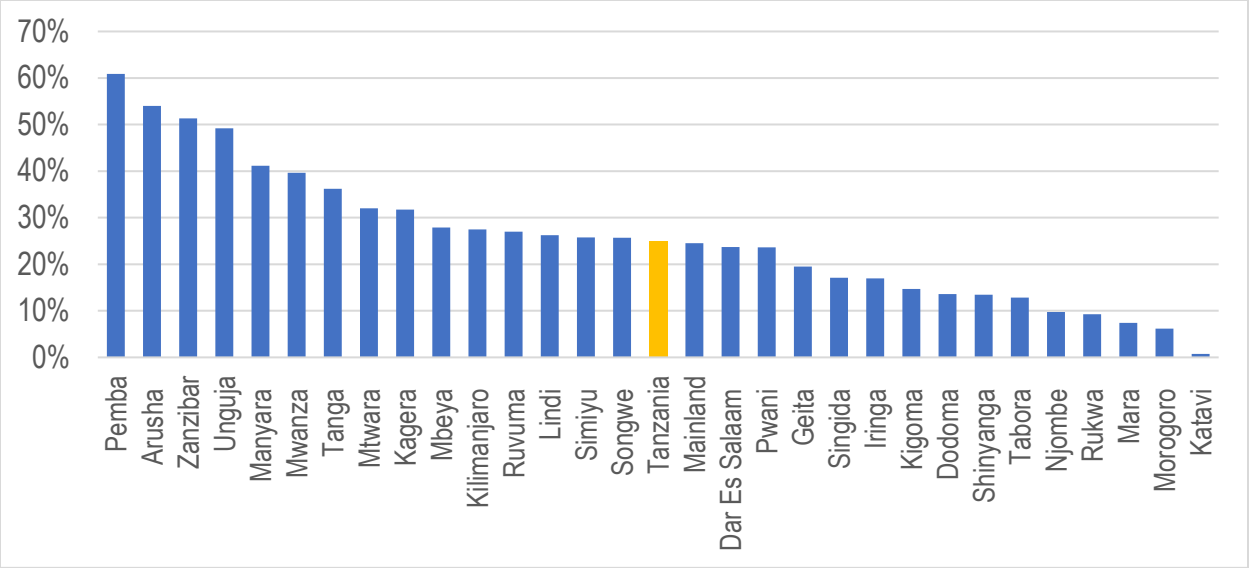
Figure 13: Trends of children notified with TB: 2015 - 2018



2.4.2 IPT provision to Children

A total of 4,729 children under age of five years household contact of bacterial confirmed TB cases were provided with IPT. All children younger than 5 years in contact with a bacterial confirmed TB 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. The average national uptake is 22% with Pemba at 60% and region with lowest uptake is Katavi at 1%.

Figure 14: Percentage of Children (aged<5) household contact of bacteriological confirmed TB cases on preventive treatment: 2018.



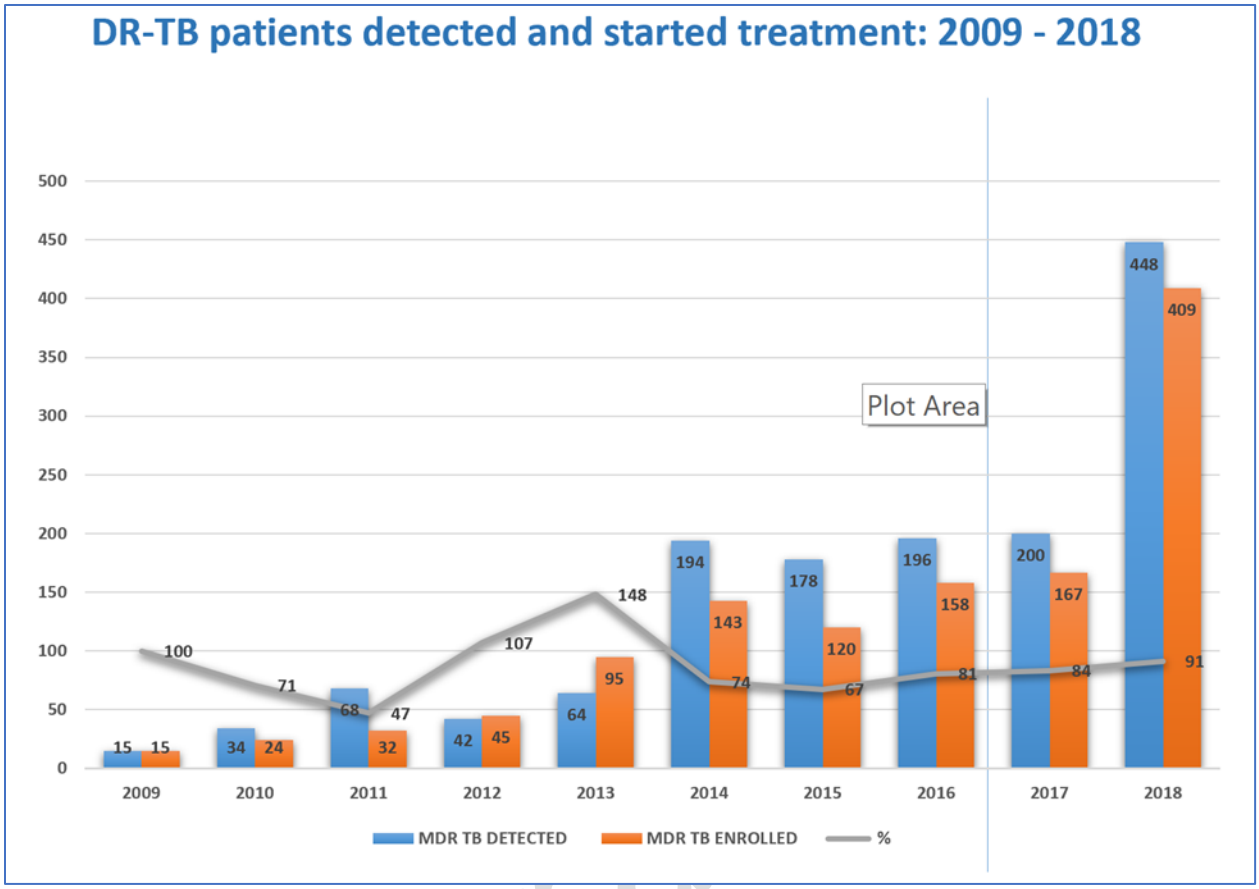
2.5 MDR-TB

Decentralization of MDRTB services has continued where by 30 new facilities have been enrolled to make a total of 111 health facilities which provide this service in the country. Up to December 2018 this means 96% (26 out of 27) of all regions have at least one site that can provide MDRTB management.

2.5.1 MDRTB Notification and Enrolment to treatment

In 2018 a total of 449 RR/MDRTB cases were notified country wide among which 409 (91%) were started on MDR TB treatment. As in previous years, Dar es Salaam region contributed the largest proportion of RR/MDR TB cases detected and enrolled on treatment (28%) followed by Mwanza (11%), Geita (6%), Pwani and Mara (5%) each, Morogoro, Mbeya and Lindi each contributed (4%), Arusha and Mtwara (3%) each, other regions had 27% in total except Katavi which did not detect any case. The graph below Figure 15 below shows trend of MDR/RR-TB patients started notified and enrolled.

Figure 15: DR-TB patients detected and started treatment: 2009-2018



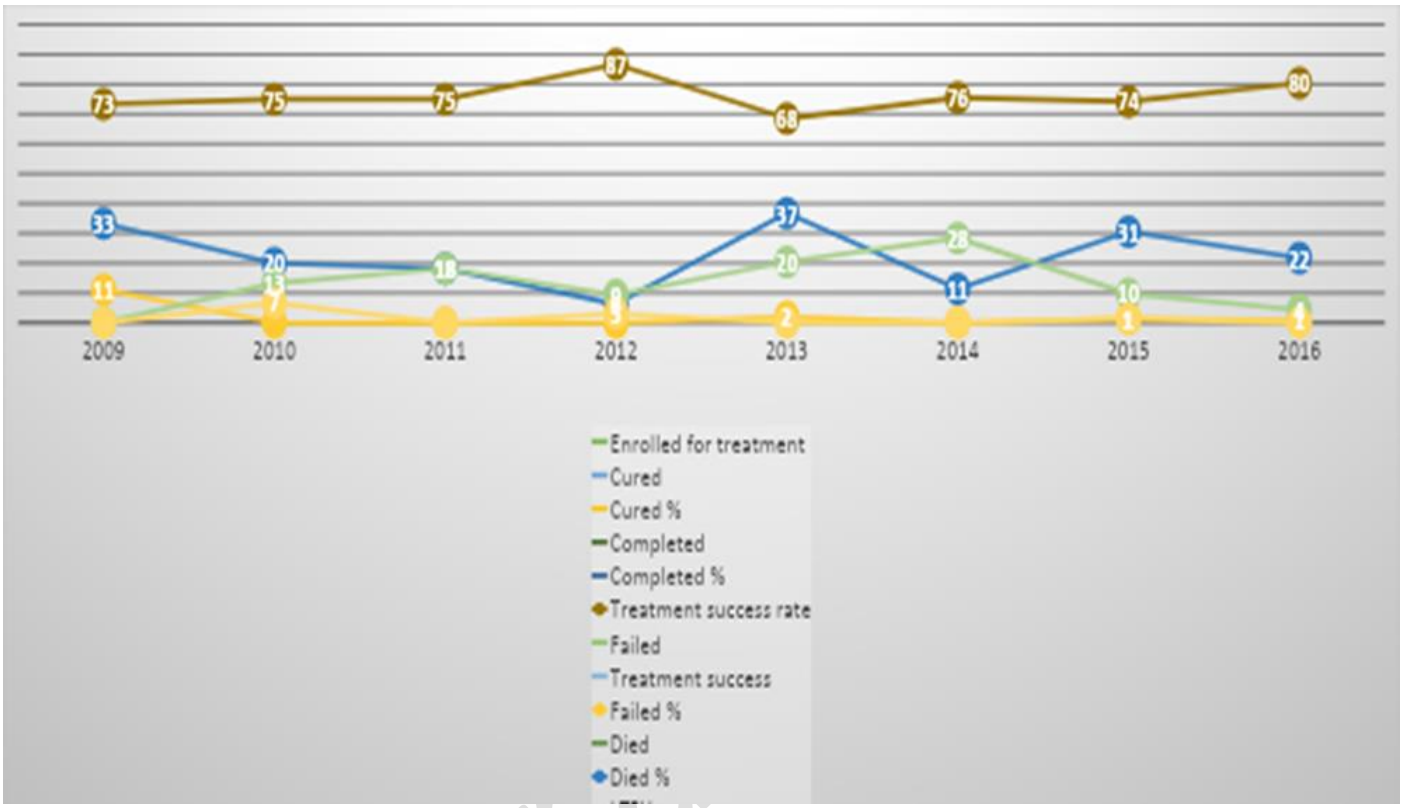
Of RR/MDR TB enrolled patients to treatment 266(65.0) were male and 143(35.0%) female, and 122(30.0%) patients were HIV coinfected.

The age of enrolled cases ranged from 10 to 86 years old with a median age of 37 years. About half 54.2% of patients were aged 25 – 44 years.

Of all 158 patients enrolled to treatment in 2016, 127 (80.4%) were successfully treated (cured + treatment completed).

Those with unfavourable outcome include; 25 (15.8. %) patients died, 5(3.2%) patients lost to follow up. A review of trends of enrolment and treatment outcomes from 2009 (figure 16) showed the overall linear increase in number of RR/MDR TB patients enrolled to treatment with average success rate of 76% this is higher than the global rate of 56% but its lower than the WHO target of over 90%.

Figure 16: MDR TB TREATMENT OUTCOMES 2009 - 2016



3 LEPROSY CONTROL

3.1 Leprosy Case Notification

Tanzania has observed the gradual decrease of leprosy cases notified every year for the past five years. The notified cases have decreased from 2,062 in the year 2014 down to 1,535 in 2018. Among the notified leprosy cases in 2018, new leprosy cases were 1,535 (97%) and retreatment cases were 50 (3%) of all reported cases of leprosy. The number of relapses in Tanzania are continuously going down, for example in 2018 decreased for about 50% compared to the proportions in the year 2017 as shown in the table 3 below.

Table 3 : Leprosy cases reported in 2017 and 2018

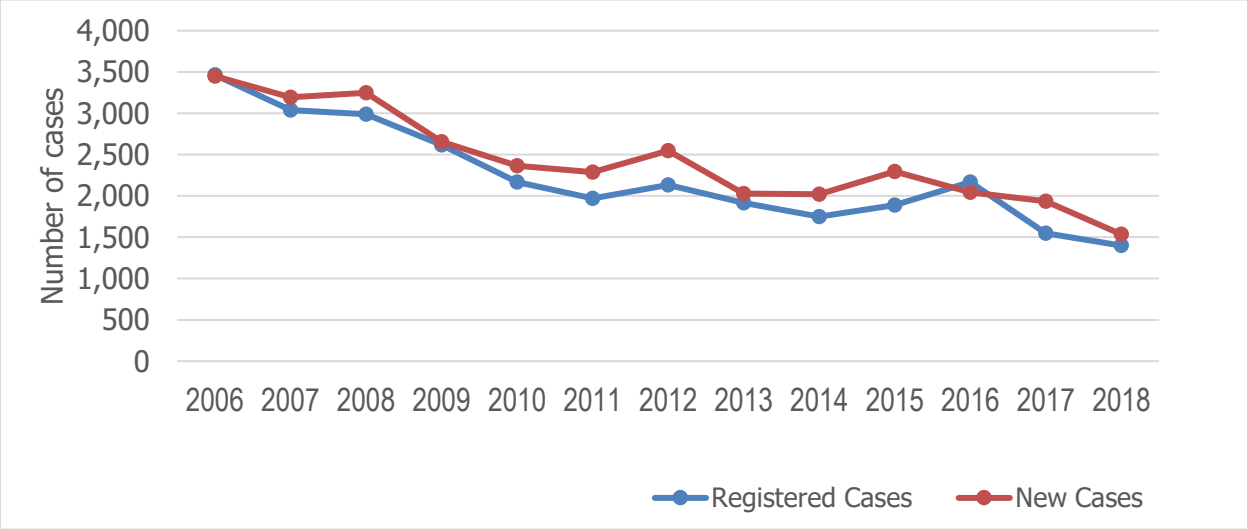
Leprosy Classification	2017		2018		Change	
	Cases	%	Cases	%	Cases	%
All forms	**1,937**		**1585**		**-352**	**-18**
New cases						
- MB	1,676	91	1,410	92	-266	-16
- PB	159	9	125	8	-34	-21
Total	**1,835**	**95**	**1,535**	**97**	**-300**	**-16**
Re-treatment						
- Return after default	51	2.6	24	1.4	-27	-53
- Relapse after MDT	38	1.9	20	1.3	-18	-47
- Relapse after DDS/Others	13	0.7	6	0.3	-7	-54
Total	**102**	**5.2**	**50**	**3.0**	**-52**	**-51**

New leprosy cases notified in 2018

In 2018, a total of 1,535 new leprosy cases were detected in the country and the annual notification rate (case detection rate) was calculated at 2.8/100,000. 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 continue to have the highest leprosy notification rates in the country at 11.6 cases per 100,000 population. Arusha region did not report any leprosy case but also Simiyu, Manyara and Kilimanjaro reported at least only 2 cases during this reporting period. There were 11 regions with notification rates above national average of 2.8 including: Lindi, Rukwa, Morogoro, Pwani, Mtwara, Katavi, Tanga, Unguja, Ruvuma, Dar es Salaam and Dodoma.

Among the new cases notified, 1,410 (92%) were MB. Females were 740 (36%) giving a female to male ratio of 1:1.5 suggesting that being male continues to remain a risk factor. The number of children notified among the new cases continue to decline and this reporting year was only 44 or 3% which was nearly a half of those reported in 2017. New leprosy cases notified with disability grade II also went down to 175 (11%) as compared to 254 in 2017. Table below summarizes indicator data on new leprosy cases notified in 2017 by regions and those having disability grade II according to WHO classification. However, the trend of new leprosy cases detected for the past 13 years shows tremendous decline country wide as is displayed in the figure 17 below.

Figure 17: Trends of new leprosy cases reported: 2006 – 2018



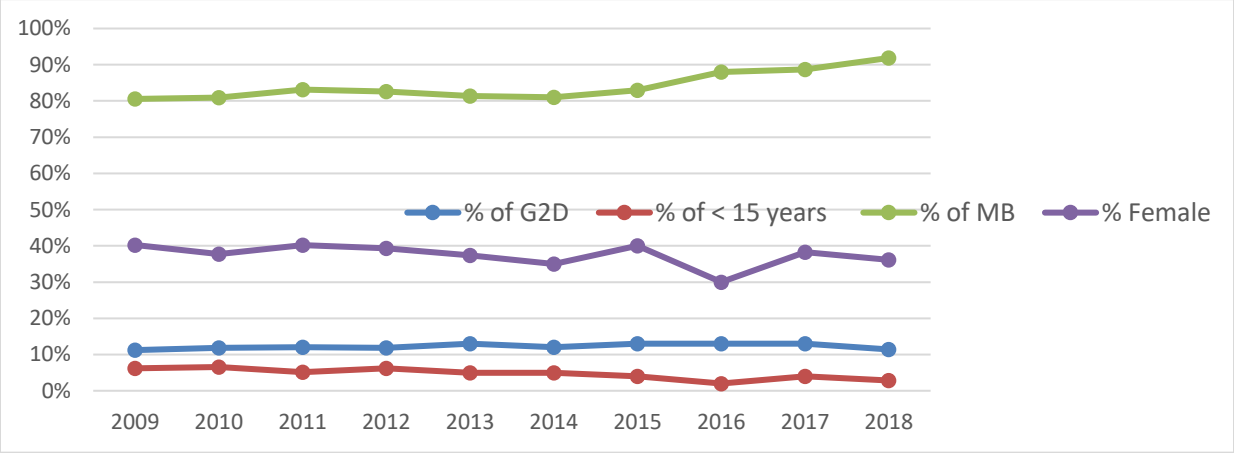
The prevalence detection ratio has remained around 1 since 2004 suggesting that patients are timely removed from the registers after completing their MDT treatment course.

Table 4: New leprosy cases detected by indicators in 2017 by regions

Regions	New cases	MB	% of MB cases	Female	% of Female cases	Children	% of children cases	D.grade II	% of d.grade II
Dar Ilala I	69	62	90%	24	35%	2	3%	1	1%
Dar Ilala II	16	16	100%	7	44%	0	0%	0	0%
Dar Kinondoni	62	62	100%	15	24%	1	2%	12	19%
Dar Temeke	59	54	92%	17	29%	2	3%	7	12%
Dar es Salaam	**206**	**194**	**94%**	**63**	**31%**	**5**	**2%**	**20**	**10%**
Arusha	0	0		0		0		0	
Dodoma	78	75	96%	30	38%	4	5%	5	6%
Geita	61	61	100%	23	38%	1	2%	4	7%
Iringa	8	7	88%	2	25%	0	0%	2	25%
Kagera	14	14	100%	5	36%	0	0%	6	43%
Katavi	42	41	98%	12	29%	0	0%	12	29%
Kigoma	69	68	99%	25	36%	4	6%	17	25%
Kilimanjaro	4	4	100%	1	25%	1	25%	1	25%
Lindi	114	86	75%	53	46%	0	0%	10	9%
Manyara	3	3	100%	1	33%	0	0%	1	33%
Mara	6	4	67%	2	33%	0	0%	1	17%
Mbeya	22	21	95%	10	45%	1	5%	4	18%
Morogoro	176	172	98%	59	34%	6	3%	3	2%
Mtwara	89	72	81%	33	37%	0	0%	9	10%
Mwanza	76	73	96%	27	36%	1	1%	15	20%
Njombe	7	7	100%	3	43%	1	14%	3	43%
Pwani	83	76	92%	39	47%	3	4%	4	5%
Rukwa	113	105	93%	43	38%	0	0%	3	3%
Ruvuma	66	64	97%	28	42%	0	0%	0	0%
Shinyanga	23	23	100%	7	30%	0	0%	10	43%
Simiyu	2	0	0%	1	50%	1	50%	1	50%
Singida	20	19	95%	8	40%	0	0%	2	10%
Songwe	6	6	100%	1	17%	0	0%	3	50%
Tabora	42	40	95%	17	40%	0	0%	12	29%
Tanga	129	122	95%	36	28%	8	6%	24	19%
Mainland	**1,459**	**1,357**	**93%**	**529**	**36%**	**36**	**2%**	**172**	**12%**
Pemba	4	4	100%	2	50%	0	0%	0	0%
Unguja	72	49	68%	24	33%	8	11%	3	4%
Zanzibar	**76**	**53**	**70%**	**26**	**34%**	**8**	**11%**	**3**	**4%**
Tanzania	**1,535**	**1,410**	**92%**	**555**	**36%**	**44**	**3%**	**175**	**11%**

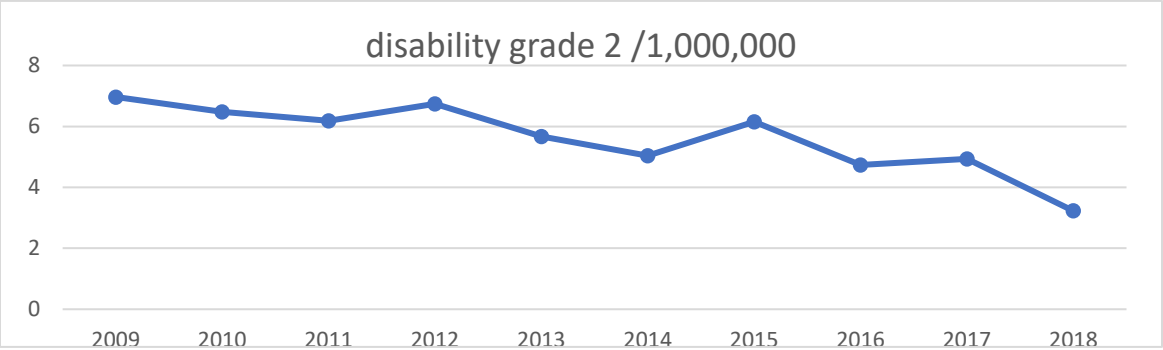
Since 1,990, the proportion of new MB cases detected annually has been slowly increasing from 68% to over 90% while the proportion of children detected has been declining slowly from 10% to 3%. The changes in proportion of MB cases and children notified annually suggest reduction in the prevalence of the disease in the country with reduced disease transmission. Figures 18 and 19 summarise the above findings for the past 10 years.

Figure 18: Trends of MB cases, children and females among new leprosy cases: 2006 -2018



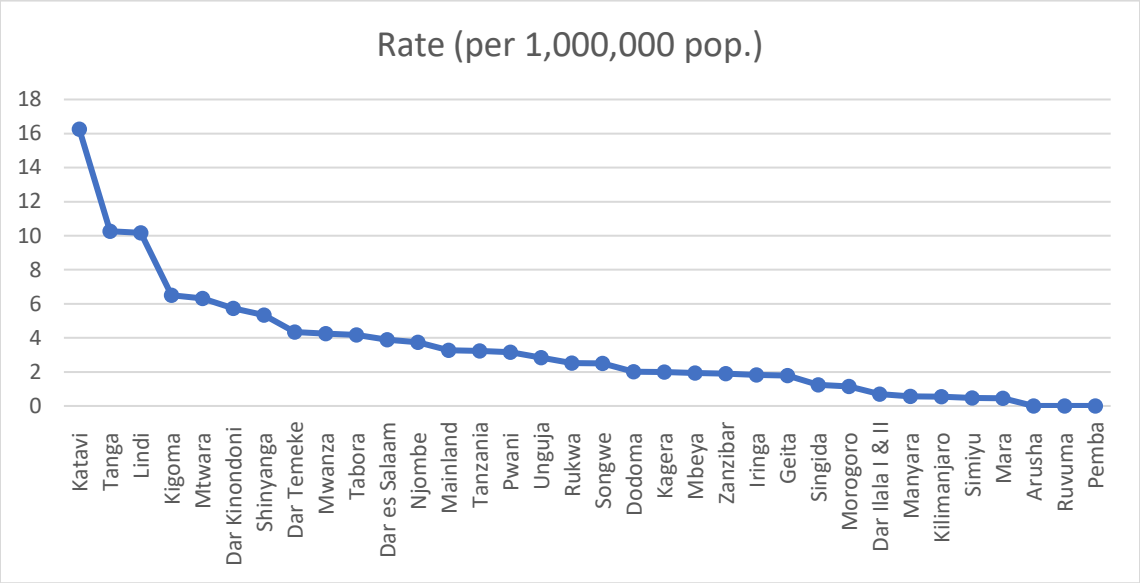
During the year 2018, the proportion of disability grade 2 among newly detected leprosy cases has remained higher above 10%, however, there has been a gradual decrease in rates as the number of people getting disability due to leprosy goes down as shown in figure 19 below.

Figure 19: Trend of disability grade 2, rates per 1,000,000 populations



The proportion of disability grade 2 per 1,000,000 population is slowly declining year after year, which means we need do a lot to identify leprosy cases early enough before become get complicated worth nerve damage.

Figure 20: The proportion of disability grade 2 per 1,000,000 population

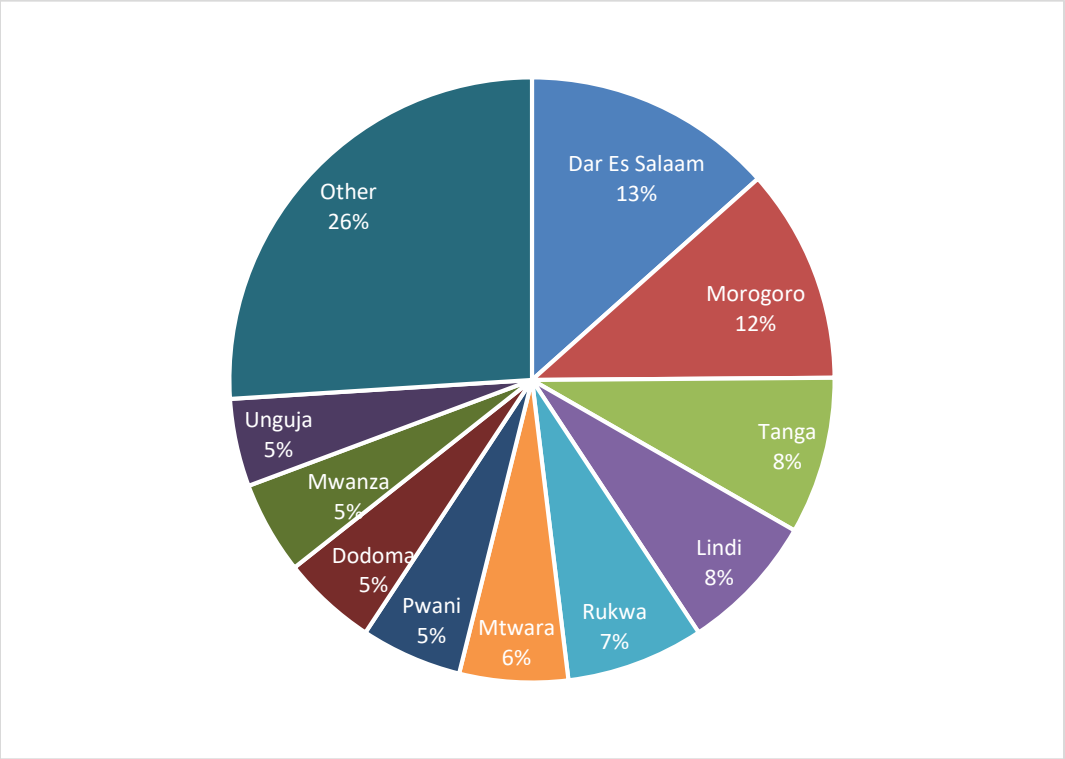


When we compare regions contributing higher proportions of G2D in the country; Katavi, Tanga, Lindi and Kigoma score above the national average. G2D is preventable; RHMT and CHMTs in these regions should increase efforts to avoid these unnecessary suffering of the people they are serving in these areas. Prevention of disability interventions which include early leprosy case detection, proper management of reactions, regular assessments of people affected by leprosy (PALs) and patient monitoring should be well supervised.

3.2 Registered Leprosy prevalence

The United Republic of Tanzania achieved leprosy elimination since 2006 and the prevalence of leprosy has progressively showed a steady decline. The registered leprosy prevalence rate for years 2018 has gone down to 0.3/10,000 population compared to 0.4/10,000 of last year 2017. The region of Lindi with the prevalence of 1.2/10,000 population was the only one yet to achieve the elimination target of less than 1 case per 10,000 population.

Figure 21: Distribution of leprosy burden by region in 2018



The 2018 data shows that, 74% of all notified leprosy cases were reported from only ten regions of Dar es Salaam (13%), Morogoro (12%), Tanga (8%), Lindi (8%), Rukwa (7%), Mtwara (6%), Pwani (5%), Dodoma (5%), Mwanza (5%) and Unguja (5%) as shown in the figure 21 above.

In the Tanzania mainland, there are a still 16 districts with prevalence rates higher than 1/10,000. These endemic districts were yet to achieve elimination targets and came from 10 different regions as shown in table 5 below. The region of Lindi had most of its districts still endemic and remain at high risk of increased disease burden.

Table 5: Endemic districts with prevalence rate greater than 1/10,000 Population by the end of 2018

S/N	Region	District	Population	Registered cases	Prevalence Rate
1	Lindi	Lindi Distric Council	220,261	32	1.5
2	Lindi	Lindi Municipal Council	90,365	16	1.8
3	Lindi	Liwale District Council	104,047	15	1.4
4	Lindi	Nachingwea District Council	208,023	20	1.0
5	Lindi	Ruangwa District Council	151,404	18	1.2
6	Mtwara	Masasi Town Council	102,216	19	1.9
7	Mtwara	Nanyumbu District Council	169,756	27	1.6
8	Morogoro	Morogoro District Council	327,914	40	1.2
9	Morogoro	Mvomero District Council	364,027	40	1.1
10	Katavi	Mpanda District Council	234,150	27	1.2
11	Rukwa	Nkasi District Council	324,888	53	1.6
12	Shinyanga	Shinyanga Municipal Council	201,805	20	1.0
13	Ugunja	South & Central Unguja;	133,767	22	1.6
14	Kigoma	Kigoma Municipal Council	270,664	31	1.1
15	Pwani	Kibaha District Council	82,778	10	1.2
16	Tanga	Mkinga District Council	130,029	30	2.3
17	Ruvuma	Tunduru District Council	336,815	53	1.6

3.3 Leprosy treatment outcome

Treatment outcome of PB leprosy

The treatment outcome of PB leprosy cases who started treatment in 2017 shows that, 227(95%) completed treatment while 5 (2%) were transferred out, 3 cases (1%) lost to follow up from treatment. Most regions had 100% of cases with treatment completed and all being evaluated as shown in table 6 below.

Table 6: Treatment outcome of PB leprosy reported in 2017

Region	cases notified in 2017	Treatment Completed	Died	Out of Control	Transferred Out	Evaluated	% completed treatment
Dar Ilala I	0	0	0	0	0	0	
Dar Ilala II	0	0	0	0	0	0	
Dar Kinondoni	1	1	0	0	0	1	100%
Dar Temeke	4	3	0	0	1	4	75%
Dar es Salaam	**5**	**4**	**0**	**0**	**1**	**5**	**80%**
Arusha	0	0	0	0	0	0	
Dodoma	9	9	0	0	0	9	100%
Geita	1	1	0	0	0	1	100%
Iringa	3	3	0	0	0	3	100%
Kagera	2	2	0	0	0	2	100%
Katavi	1	1	0	0	0	1	100%
Kigoma	11	11	0	0	0	11	100%
Kilimanjaro	0					0	
Lindi	43	43	0	0	0	43	100%
Manyara	0					0	
Mara	10	8	0	1	1	10	80%
Mbeya	1	1	0	0	0	1	100%
Morogoro	41	37	0	2	2	41	90%
Mtwara	18	18	0	0	0	18	100%
Mwanza	8	8	0	0	0	8	100%
Njombe	0					0	
Pwani	7	7	0	0	0	7	100%
Rukwa	9	9	0	0	0	9	100%
Ruvuma	4	4	0	0	0	4	100%
Shinyanga	4	2	0	0	2	4	50%
Simiyu	2	2	0	0	0	2	100%
Singida	6	6	0	0	0	6	100%
Songwe	0					0	
Tabora	7	7	0	0	0	7	100%
Tanga	14	14	0	0	0	14	100%
Mainland	**206**	**193**	**0**	**3**	**5**	**206**	**94%**
Pemba	14	14	0	0	0	14	100%
Unguja	20	20	0	0	0	20	100%
Zanzibar	**34**	**34**	**0**	**0**	**0**	**34**	**100%**
Tanzania	**240**	**227**	**0**	**3**	**5**	**240**	**95%**

3.4 **Treatment outcome of MB leprosy**

Treatment outcome of MB leprosy cases notified in 2016 shows that, 1,786 (93%) completed treatment while 16 (1%) patients died during treatment period. However, the data also shows that 125 (7%) patients did not complete their treatment due to various reasons: 75 (4%) lost to follow up from treatment and 50 (3%) cases were transferred out during treatment course. Most of regions attained good treatment outcomes despite lower number of notifications. Table 7 below summarizes treatment results of MB cases notified in 2016.

Table 7: Treatment outcome of MB leprosy notified in 2016

Region	cases notified in 2016	Treatment Completed	Died	Out of Control	Transferred Out	Evaluated	% completed treatment
Dar Ilala I	45	44	0	0	1	45	98%
Dar Ilala II	5	4	0	0	1	5	80%
Dar Kinondoni	67	59	1	5	2	67	88%
Dar Temeke	89	81	0	6	2	89	91%
Dar es Salaam	**206**	**188**	**1**	**11**	**6**	**206**	**91%**
Arusha	3	2	0	1	0	3	67%
Dodoma	71	69	0	2	0	71	97%
Geita	113	101	4	0	8	113	89%
Iringa	11	11	0	0	0	11	100%
Kagera	43	42	0	0	1	43	98%
Katavi	49	49	0	0	0	49	100%
Kigoma	106	93	0	9	4	106	88%
Kilimanjaro	7	6	0	1	0	7	86%
Lindi	186	184	1	0	1	186	99%
Manyara	6	5	0	1	0	6	83%
Mara	11	10	0	1	0	11	91%
Mbeya	45	42	0	2	1	45	93%
Morogoro	270	243	5	17	5	270	90%
Mtwara	110	98	0	12	0	110	89%
Mwanza	80	77	1	0	0	78	96%
Njombe	4	4	0	0	0	4	100%
Pwani	86	83	0	3	0	86	97%
Rukwa	106	98	3	5	0	106	92%
Ruvuma	81	71	0	5	5	81	88%
Shinyanga	52	37	0	0	15	52	71%
Simiyu	7	5	0	1	1	7	71%
Singida	19	19	0	0	0	19	100%
Songwe	0	0	0	0	0	0	
Tabora	61	55	1	2	3	61	90%
Tanga	140	139	0	1	0	140	99%
Mainland	**1,873**	**1,731**	**16**	**74**	**50**	**1,871**	**92%**
Pemba	4	4	0	0	0	**4**	100%
Unguja	52	51	0	1	0	52	98%
Zanzibar	**56**	**55**	**0**	**1**	**0**	**56**	**98%**
Tanzania	**1,929**	**1,786**	**16**	**75**	**50**	**1,927**	**93%**

3.5 Activities related to acceleration of leprosy elimination efforts

Tanzania achieved national elimination targets in 2006 but remain at high risk of increasing incidences as continues to notify over 1,000 cases a year. During this reporting period, the following interventions to accelerate leprosy elimination in the country included; household contact screening, provision of post exposure prophylaxis (PEP) and implementation of research activities in the selected councils. The Bangkok Declaration Special Funds (BDSF) project entered its second year of implementation while the study project on leprosy post exposure prophylaxis to look at its feasibility to be integrated into routine programmatic set up was in its final year and a three years trial test study between camping and health facility based arms for PEP was launched during the last quarter. Preparations for the field operations of another multinational trial study project (PEP4LEP) to compare leprosy screening at health facilities and skin camps was initiated. At the same time, other routine activities which included POD, CBR and advocacy interventions were going on as were planned.

3.6 Leprosy Post Exposure Prophylaxis (LPEP)

The implementation of Leprosy Post-Exposure Prophylaxis (LPEP) study project reached its final year of field operations. The study was implementaed in the three leprosy endemic districts of Kilombero, Liwale and Nanyumbu. The LPEP study was a multinational study implemented in seven countries across Asia, Africa and Latin America and Tanzania was the only country representing the African continent.

The main aim of the study was 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 project involved 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 field operations were implemented by community health volunteers under the supervision of local health facility staff and TB/Leprosy coordinators.

The study involved all new leprosy cases diagnosed during the period of years 2014-2018 and was fully integrated into the national leprosy control program and district health care delivery system. Funding of the project was provided by the Novartis Foundation of Swiss. By the end of this final year, the preliminary study findings showed high level of community acceptance with good performance and the coverage of over 168% (reached 5807 people compared to 3450 targeted) as shown in the table 8 below.

Table 8: Epidemiological information of LPEP contacts divided by program year, and according to screening status, age group, gender and type of contact

	Retrospective	Prospective			Overall
LPEP program year	**2014-2015**	**2015-16**	**2016-17**	**2017-18**	**2014-18**
Total listed	2,038	1,577	1,429	850	5,894
Total screened	1,997	1,548	1,413	849	5,807
Total SDR administered	1,684	1,273	1,169	571	4,691
Contacts received SDR per index patient	7	7	12	7	8
Age groups screened, n (%)					
Children (<6 years)	200 (10.0)	204	168	154	726
Children (6-14 years)	562 (28.1)	402	356	161	1,481
Adolescents (15-24	401 (20.1)	298	293	180	1,172
Adults (25-49 years)	579 (29.0)	440	427	268	1,714
Adults (>= 50 years)	255 (12.8)	204	169	86	714
Gender screened, n (%)					
Male	935 (46.8)	730	630	444	2,738
Female	1,062 (53.2)	816	782	398	3,058

The final report show that 5,807 contacts were screened and among them over 4,690 people at risk given PEP of a single dose rifampicin. Furthermore, during this study 93 confirmed new leprosy cases were detected from the 752 households visited and screened for leprosy disease.

3.7 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 9 below:

Table 9: The number of targeted index cases and contacts screened in the project districts during January – December 2018

Project District	Index cases/ households	Contacts Screened	No. of New Cases detected
Mkinga	29	111	17
Muheza	29	69	0
Chato	83	740	28
Total	**131**	**920**	**45(4.9%)**

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 4.9% (compared to 2.9% in 2017) in among the household reached in the three project councils. This signals out that there probably many more hidden pockets in most of the still endemic places in the project sites.

3.8 PEP FOR LEPROSY (PEP4LEP) Implementation Trial

This is a four-year study comparing the effectiveness and feasibility of a skin camp intervention to a health centre-based intervention as countries scale up chemoprophylaxis for leprosy - An implementation trial in Mozambique, Ethiopia and Tanzania. The study is a randomised controlled trial that will provide evidence as well as detailed plans at country level for improved case finding and skin screening. In Tanzania, it will include three leprosy endemic districts of Lindi DC in Lindi region and two district councils from Morogoro regions of Mvomero and Morogoro rural. The use of Single-dose rifampicin (SDR), has a proven efficacy of 60% risk reduction when given to contacts of leprosy patients and up to 80 % when combined with BCG-vaccination.

The trial will be implemented comparing two different interventions integrated into routine care; the skin camp prophylaxis intervention and the health centre-based prophylaxis intervention. Both interventions will include common skin diseases as well as neglected infectious diseases (NIDs), manifesting with skin lesions

The results will be shared with relevant stakeholders so that contact screening and SDR distribution can be taken up into national guidelines and policies, and that further endorsement can be sought from World Health Organisation (WHO). Different interventions will be evaluated and optimisation and integration of the management of co-endemic NIDs is an important component of the study.

The study will contribute to timely diagnosis and treatment of skin diseases and will introduce preventive chemotherapy for leprosy to reduce transmission. It will also contribute towards the achievement of the United Nations' Sustainable Development Goal three: 'Ensure healthy lives and promote well-being for all at all ages' by generating evidence for the most effective and feasible way to integrate chemoprophylaxis for leprosy into routine leprosy control programmes in different socio-cultural settings in sub-Saharan Africa.

During this reporting year, Tanzania organized and hosted a start-up meeting of consortium and the international scientific steering committee to review implementation plan, look at logistic dynamics and familiarization.

3.9 Activities related to prevention of disabilities (POD)

The programme continues 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 LABORATORY SERVICES

The Tanzanian government continues to provide both TB diagnostic services and treatment free of charge in all public and private health centres. TB control is fully integrated into the primary health care services. All 6,058 public health facilities are designated TB treatment sites, while 1,200 (19.8%) are designated TB diagnostic sites with provision for at least smear microscopy.

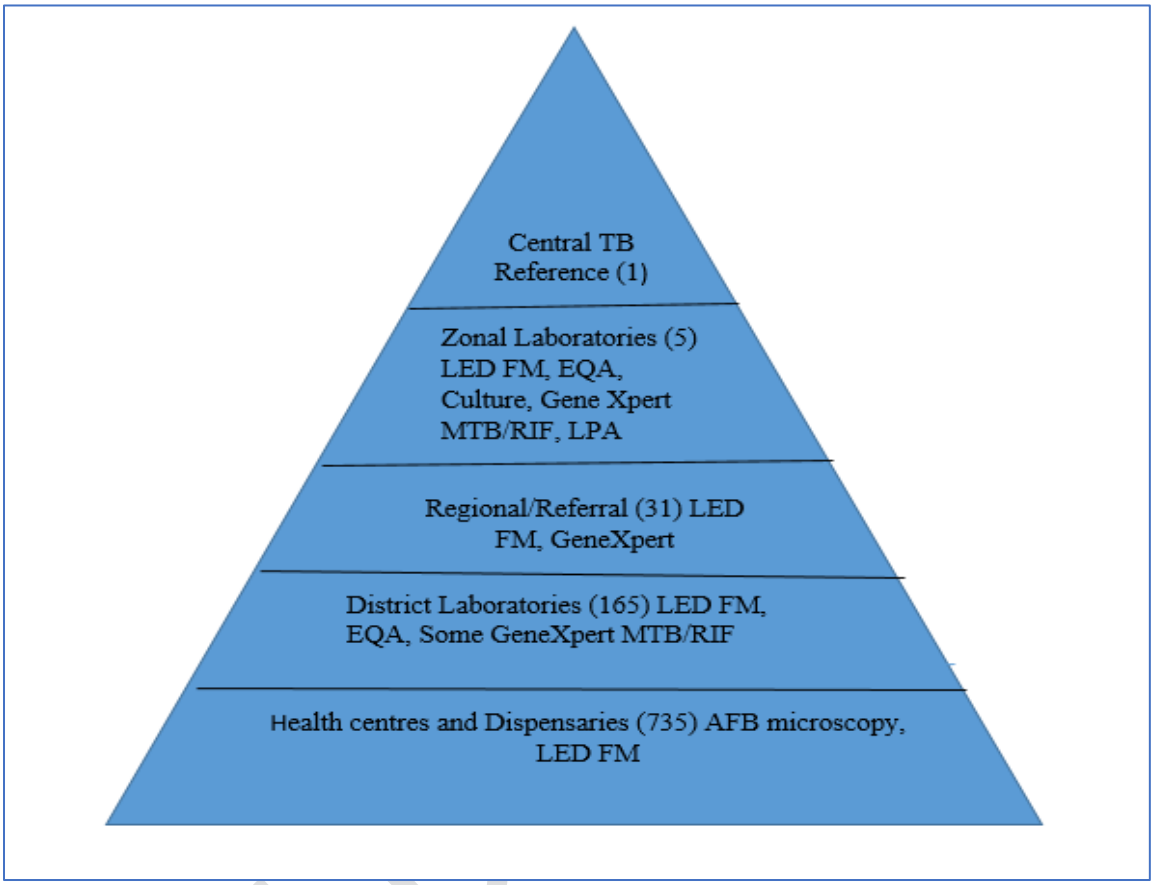
Amongst other things, the programme focuses on improving the Routine Surveillance System (RSS) with the Central Tuberculosis Reference Laboratory (CTRL) and its networks. The TB laboratory network in Tanzania is organised into four main levels according to the type of services provided. Their responsibilities are elaborated below.

1. National: Central Tuberculosis Reference Laboratory (CTRL) (1)
2. Intermediate: Zonal Tuberculosis Reference Laboratories (6)
3. Regional/referral (31) and district (169) hospital laboratories

There are six Zonal TB Culture laboratories, namely the CTRL, Bugando Medical Centre, Dodoma Regional Hospital, Kibong'oto Infectious Disease Hospital, Mbeya Referral Hospital and Pemba Public Health Laboratory. The CTRL serves the Geographical Eastern and Costal regions zone of the country and as well as the National Reference laboratory. Kibong'oto Infectious Disease Hospital Laboratory (KIDHL) serves the Northern zone, Bugando Medical Centre (BMC) serves the lake zone regions, Mbeya Zonal Referral Hospital Laboratory serves the Southern highlands regions, and Dodoma Regional hospital laboratory serves the central regions zone while the Pemba Public Health Laboratory (PHLB) serves Unguja and Pemba Islands.

In addition, the Programme has expanded the molecular technique across the country, there were 206 health facilities with GeneXpert MTB/RIF (Xpert) machines and 3 Line Probe Assay for both first- and second-line anti-TB drugs susceptibility testing.

Figure 22: CASCADE OF LABORATORY SERVICES



4.1 Laboratory workload

The CTRL receives varieties of specimen types such as sputum, culture isolates, Biopsy tissue, Gastric Aspirate and Pleural Fluid from across the country. In 2018 total specimens received was 3,165 a decrease of 45.98% compared to the number received in 2017 (5,859). This decrease was mainly due to completion of the second Drug Resistant Survey (DRS) that was launched in 2017 as shown in Table 10 below.

Table 10: Types of specimen received at the CTRL

Type of Specimens	Frequency	Proportion
Sputum	2624	82.91%
Biopsy tissue	1	0.03%
Gastric Aspirate	1	0.03%
Pleural Fluid	1	0.03%
Culture isolates	538	17.00%
Total number of specimen received	3165	100.00%

Out of all the received specimens 1,149 (40.4%) were from New patients while previously treated cases were 1984 (62.68%). Category not indicated was 32(0.1%) this shows much improvement compared to the previous years. See Table 11 below.

Table 11: Patient categories

Variables	Reason for Requesting				
Registration Group	Diagnosis	Follow up	Not provided	Frequency	Proportion
New patient	1149	125	5	1279	40.4%
Relapse patient	558	309	3	870	27.5%
Treatment after failure patient	57	15	0	72	2.3%
Treatment after loss to follow-up patient	42	15	1	58	1.8%
Other previously treated patient	67	70	5	142	4.5%
DR-TB case	39	670	2	711	22.5%
DR-TB Contact	16	10	3	29	0.9%
Not provided	0	4	0	4	0.1%
Total	1928	1218	19	3165	100.0%

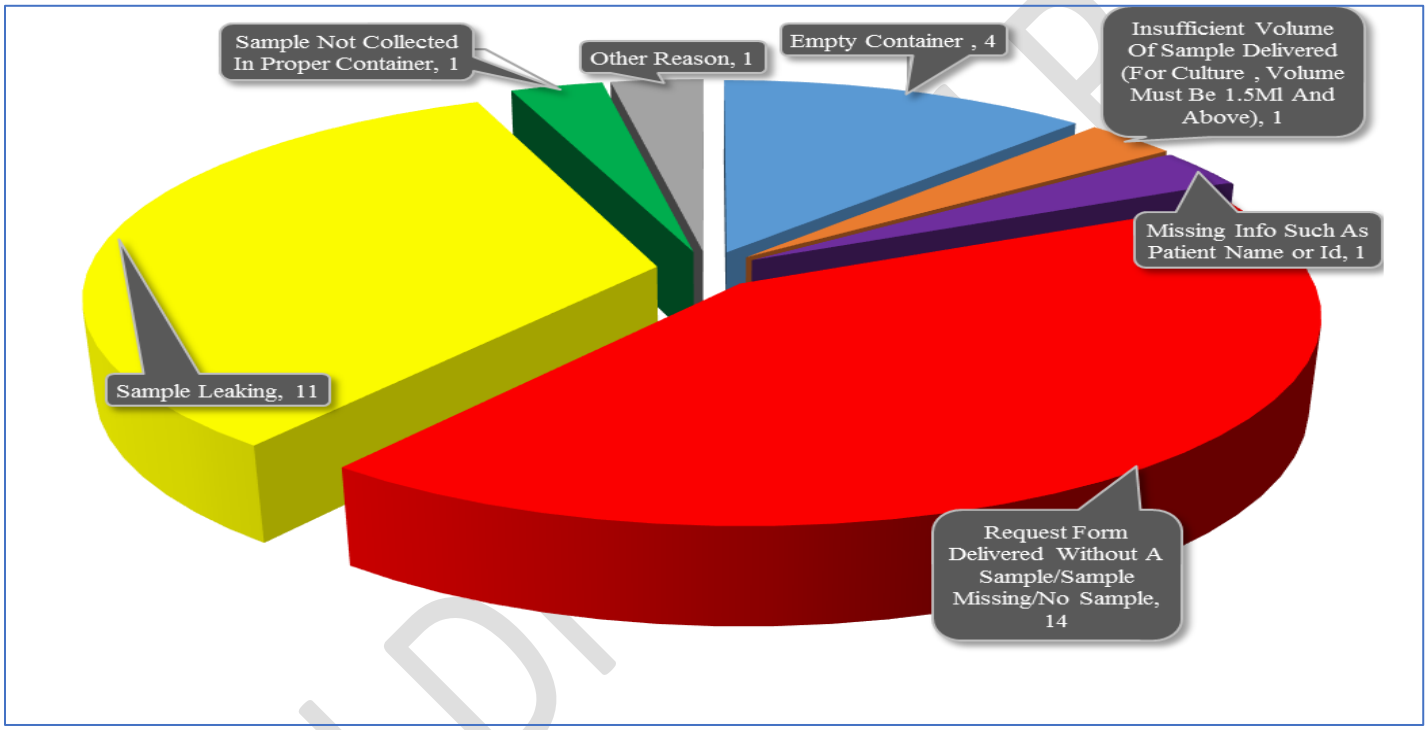
Key: DR-TB; drug resistant tuberculosis

Table 3 shows specimens received by region; Ilala I TB region being the highest contributor 665 (21.01%) followed by Temeke TB region 580 (18.33%) and the least was Katavi TB region 1 (0.03%).

Table 12: Number of Specimens received at the CTRL by region in 2018

Region	Specimen received -Ctrl	Percent of Specimen received
Geita	22	0.70%
Kagera	11	0.35%
Kigoma	21	0.66%
Mara	113	3.57%
Mwanza	120	3.79%
Shinyanga	16	0.51%
Simiyu	10	0.32%
Ilala I	665	21.01%
Ilala II	106	3.35%
Kigamboni	46	1.45%
Kinondoni	285	9.00%
Temeke	580	18.33%
Ubungo	27	0.85%
Lindi	90	2.84%
Morogoro	151	4.77%
Mtwara	73	2.31%
Pwani	256	8.09%
Dodoma	58	1.83%
Singida	16	0.51%
Tabora	11	0.35%
Arusha	77	2.43%
Kilimanjaro	186	5.88%
Manyara	39	1.23%
Tanga	47	1.48%
Iringa	7	0.22%
Katavi	1	0.03%
Mbeya	46	1.45%
Njombe	3	0.09%
Rukwa	2	0.06%
Ruvuma	21	0.66%
Songwe	2	0.06%
Pemba	21	0.66%
Unguja	33	1.04%
Not provided	3	0.09%
Total	3165	100.00%

Figure 23: Reason for specimen's rejection at the CTRL



Out of all the received specimens 33 (1.04%) were rejected for reasons such as no specimen in the container, missing request form or forms badly filled in with no address as shown in figure 23 above.

4.2 Comparison between Cases notification versus the number of specimens received at the CTRL

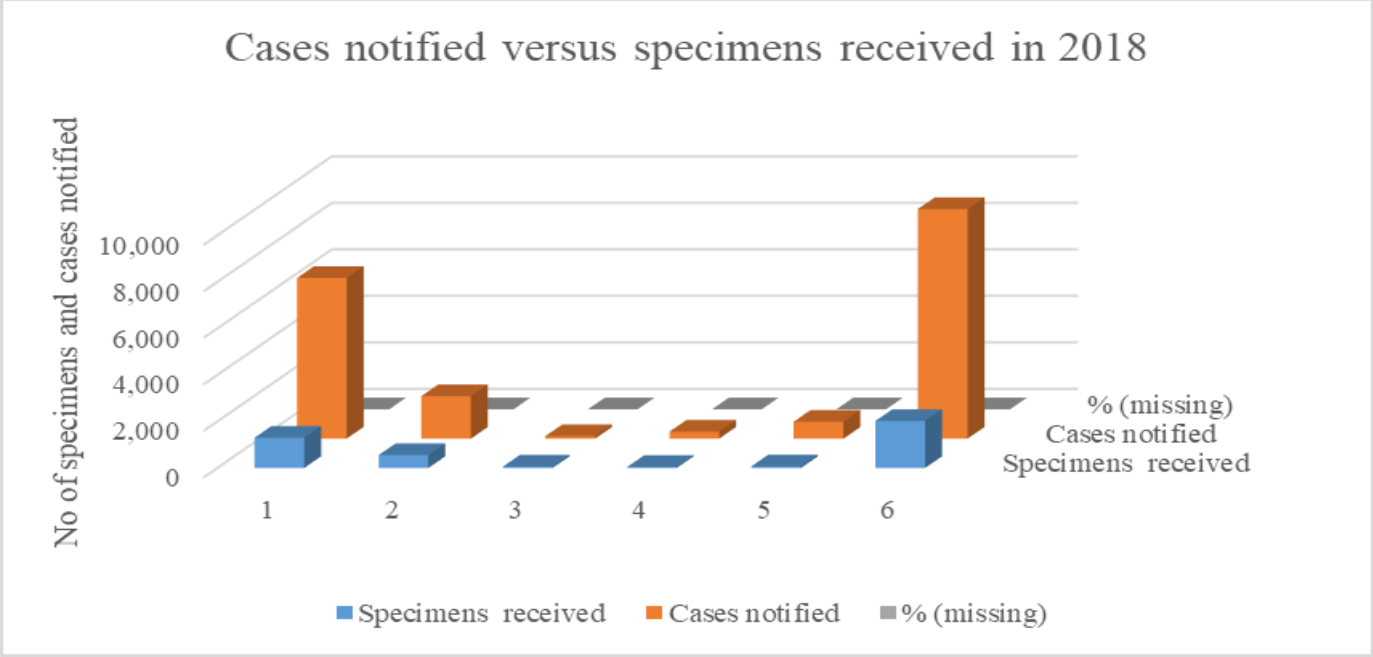
In 2018, 75,659 cases were notified in the country, out of which 6,910 (25%) new bacteriological confirmed cases and 2,967 (100%) previously treated cases were supposed to be submitted to the CTRL for Routine Surveillance. However, only 1,299 new and 724 previously treated cases were received. In this regard, the CTRL did not

receive about 81.20% and 75.59% from new and previously treated case specimens respectively. See Table 13 and Figure 24 below.

Table 13: Cases notified by treatment category and number of specimens received in 2018

Case notification	Specimens received	Cases notified	% (missing)
New	1,299	6,910	81.20%
Relapse	558	1825	69.42%
Treatment after failure patient	57	112	49.12%
Treatment after lost to follow up patient	42	303	86.14%
Other	67	727	90.78%
Grand Total	**2023**	**9877**	**79.52%**

Figure 24: Comparison between cases notified and specimens received



4.3 The Routine Surveillance System

The Routine Surveillance System (RSS) is intended to monitor treatment outcomes by assessing patient response to TB drugs. The current NTLP RSS policy specifies that 25% of new and 100% of previously treated TB cases that are smear-positive for TB should be referred to the CTRL for DST. This includes Isoniazid, Rifampicin, Ethambutol and Streptomycin first line drugs and Kanamycin, Ofloxacin and Capreomycin as second line drugs.

4.4 Specimens received at the CTRL from the Zonal TB laboratories

Specimens are collected across the country and submitted to the Zonal TB Laboratories where Mycobacterium culture is performed. Isolates from the Zonal TB laboratories are sent to the CTRL for DST. A total of 538 (%) positive isolate were received from the Zonal TB laboratories. Mwanza being the highest (34.8%) and Dodoma being the lowest (13.8%) this was because it was under renovation.

Table 14: Specimen received at the CTRL from the Zonal TB laboratories

Isolates from zonal labs	2017	2018
Dodoma Regional Hospital	1	74
Mbeya Zonal referral Hospital	33	74
Bugando Medical Centre	113	187
Kibong'oto Infectious Disease Hospital	168	158
Pemba Public Health Laboratory	86	45
Total	**401**	**538**

4.5 Culture indicators

Out of the 3,165 routine specimens received at the CTRL, 2,537 (80.2%) had culture results and 538 (17%) were positive isolates.

Table 15: Culture Indicators

Microscopy/Culture	FREQUENCY	%
smear positive/Culture positive	256	46.80%
smear positive/Culture negative	282	51.55%
smear negative/Culture positive	232	11.66%
smear negative/Culture negative	1731	86.98%
smear positive/Culture Contaminated	9	1.65%
smear negative/Culture contaminated	27	1.36%

4.6 Drug susceptibility testing profile

All the positive cultures isolates 488 from the CTRL and 538 from the zonal laboratories underwent either proportion method or molecular technique - Line Probe Assay for first and or second line DST. See Table 7

4.6.1 Agar Proportion Method (LJ DST)

A total of 638 specimens underwent Agar Proportion method (Phenotypic Drug Susceptibility Testing) during the year. Out of those, 445 (43.37%) were sensitive to all the first line drugs, there were no cases resistant to at least two other than Isoniazid and Rifampicin (Poly resistant) cases, 6 (0.58%) were resistant to at least one of the first line drugs (Mono resistant). Eighty 80 (7.80%) were Multi Drug resistant cases (Resistant to at least Isoniazid and Rifampicin)

There were 46 (4.48%) specimens with MDR and at least other second line drug resistance and there were no specimens with MDR and resistant to Injectables and Fluoroquinolones (XDR-TB).

Other Laboratory indicators were as follows, Contamination was 13 (1.36%) and No growth on Drug Free were 33 (3.22%) Table 16 below gives all the Phenotypic DST details

Table 16: Susceptibility testing profile- Proportion method

Registration group	New	Relapse	Treatment after failure	Treatment after loss to follow-up	Other previously treated	DR-TB case	DR-TB Contact	Total	Percen
Isolate	368	132	18	5	5	6	4	538	52.44
Positive Culture	270	154	4	2	22	34	2	488	47.56
Total	638	286	22	7	27	40	6	1026	100.00
Contaminated	7	5	0	0	0	2	0	14	1.36
No Growth	17	10	0	1	2	2	1	33	3.22
MOTT	1	3	0	0	2	2	0	8	0.78
Susceptible to all first-line drugs	299	117	4	4	12	9	0	445	43.37
MDR-resistant	**39**	**24**	**8**	**0**	**3**	**6**	**1**	**80**	**7.80**
Resistant to Isoniazid ,Rifampicin,Streptomycin & Ethambutol	4	4	1	0	0	0	1	10	0.97
Resistant to Isoniazid ,Rifampicin and Ethambutol	10	4	2	0	0	1	0	17	1.66
Resistant to Isoniazid ,Rifampicin and Streptomycin	7	5	2	0	0	0	0	14	1.36
Resistant to Rifampicin & Streptomycin	0	0	0	0	0	0	0	0	0.00
Resistant to Rifampicin,Streptomycin & Ethambutol	0	0	0	0	0	0	0	0	0.00
Resistant to Isoniazid and Rifampicin	17	11	3	0	3	5	0	39	3.80
Mono resistant drug	**2**	**2**	**0**	**0**	**2**	**0**	**0**	**6**	**0.58**
Resistant to Isoniazid	2	2	0	0	2	0	0	6	0.58
Resistant to Rifampicin	0	0	0	0	0	0	0	0	0.00
Resistant to Streptomycin	0	0	0	0	0	0	0	0	0.00
Other	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**
Resistant to Isoniazid & Streptomycin	0	0	0	0	0	0	0	0	0.00
Resistant to streptomycin & Ethambutol	0	0	0	0	0	0	0	0	0.00
MDR+Km(or Cm or Ak)	0	0	0	0	0	0	0	0	0.00
MDR+Fluoroquinolone(FQ)	0	0	0	0	0	0	0	0	0.00
MDR+Other second line	22	14	4	0	1	3	2	46	4.48
MDR+FQ+injectable(XDR)	0	0	0	0	0	0	0	0	0.00

4.3.2 Line Probe Assay

A total of 461 specimens were examined using the Line Probe Assay (LPA) whereby 359 (77.9%) were for first line drugs and 102 (22.1%) were tested for second line drugs. Isoniazid mono-resistant were 3 (0.84%) 9 (2.51%) were MDR TB and 107 (29.81%) were MTB not detected. See Table 17 .

Table 17: Line Probe Assay test results

Measures	New	Relapse	Treatment after failure	Treatment after loss to follow-up	Other previously treated	DR-TB case	DR-TB Contact	Total	Percent
First Line Probe Assay									
Resistant to Isoniazid	2	1	0	0	0	0	0	3	0.84%
Resistant to Rifampicin	0	7	0	0	1	1	0	9	2.51%
Resistant to Isoniazid and Rifampicin	8	9	3	0	5	1	1	27	7.52%
Sensitive to Isoniazid and Rifampicin	109	55	6	3	18	6	2	199	55.43%
MTB not Detected	42	43	1	1	5	13	2	107	29.81%
Contaminated	1	0	0	0	0	0	0	1	0.28%
Invalid	6	0	0	0	4	3	0	13	3.62%
Total	168	115	10	4	33	24	5	359	100.00 %
Second Line Probe Assay									
Resistant to Fluoroquinolones (FLQ)	0	1	0	0	0	0	0	1	0.98%
Resistant to Aminoglucosides /Injectables(FLQ /AG)	0	0	0	0	0	0	0	0	0.00%
Resistant to Low-level kanamycin	0	0	0	0	0	0	0	0	0.00%
Sensitive to all	16	15	2	2	5	6	1	47	46.08%

MTB not Detected	22	21	0	0	2	2	1	48	47.06%
Contaminated	0	0	0	0	0	0	0	0	0.00%
Invalid	4	0	0	0	1	1	0	6	5.88%
Total	42	37	2	2	8	9	2	102	100.00 %

Figure 25: Comparison of First Line probe assay in 2016, 2017 and 2018

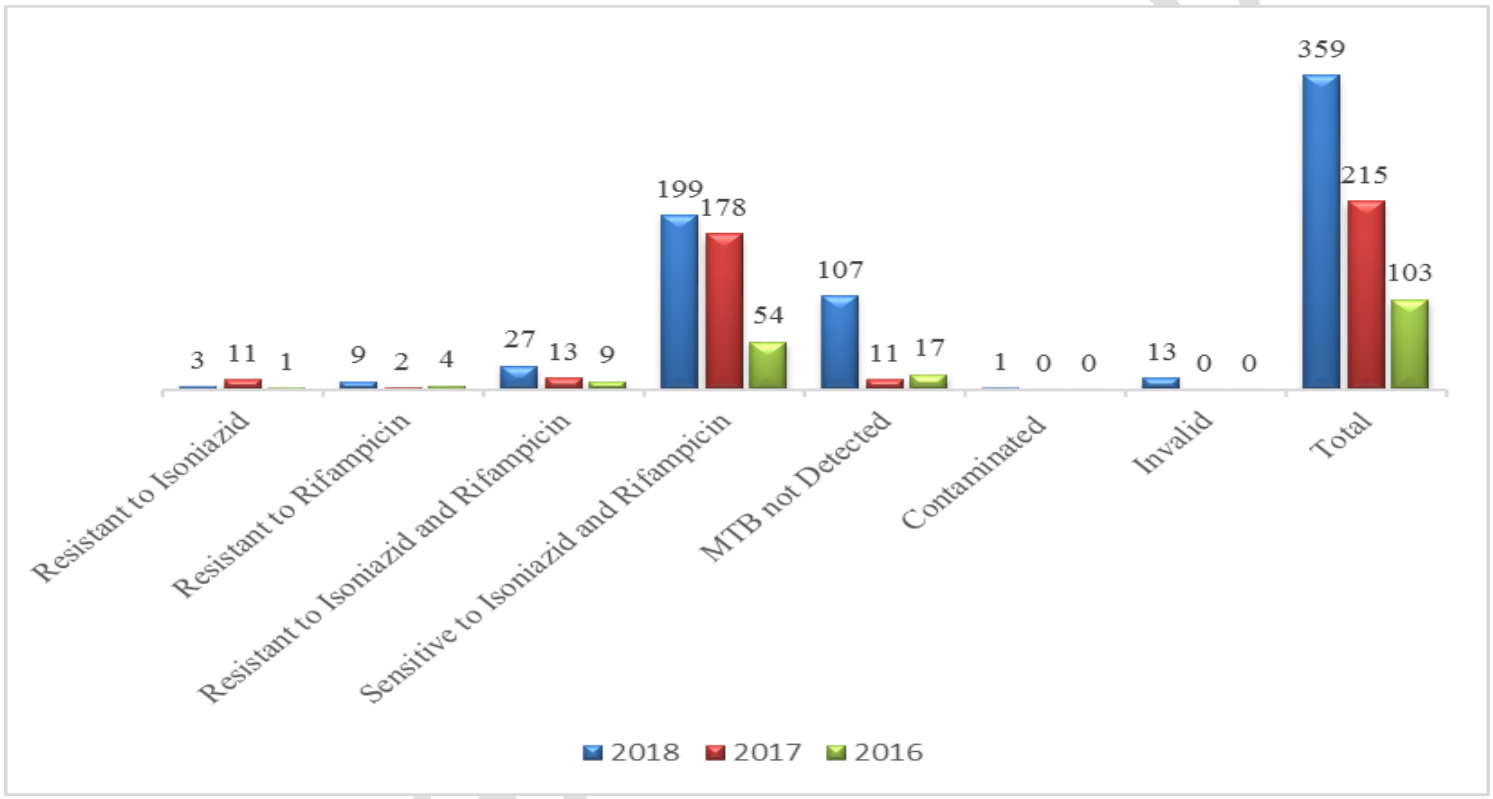
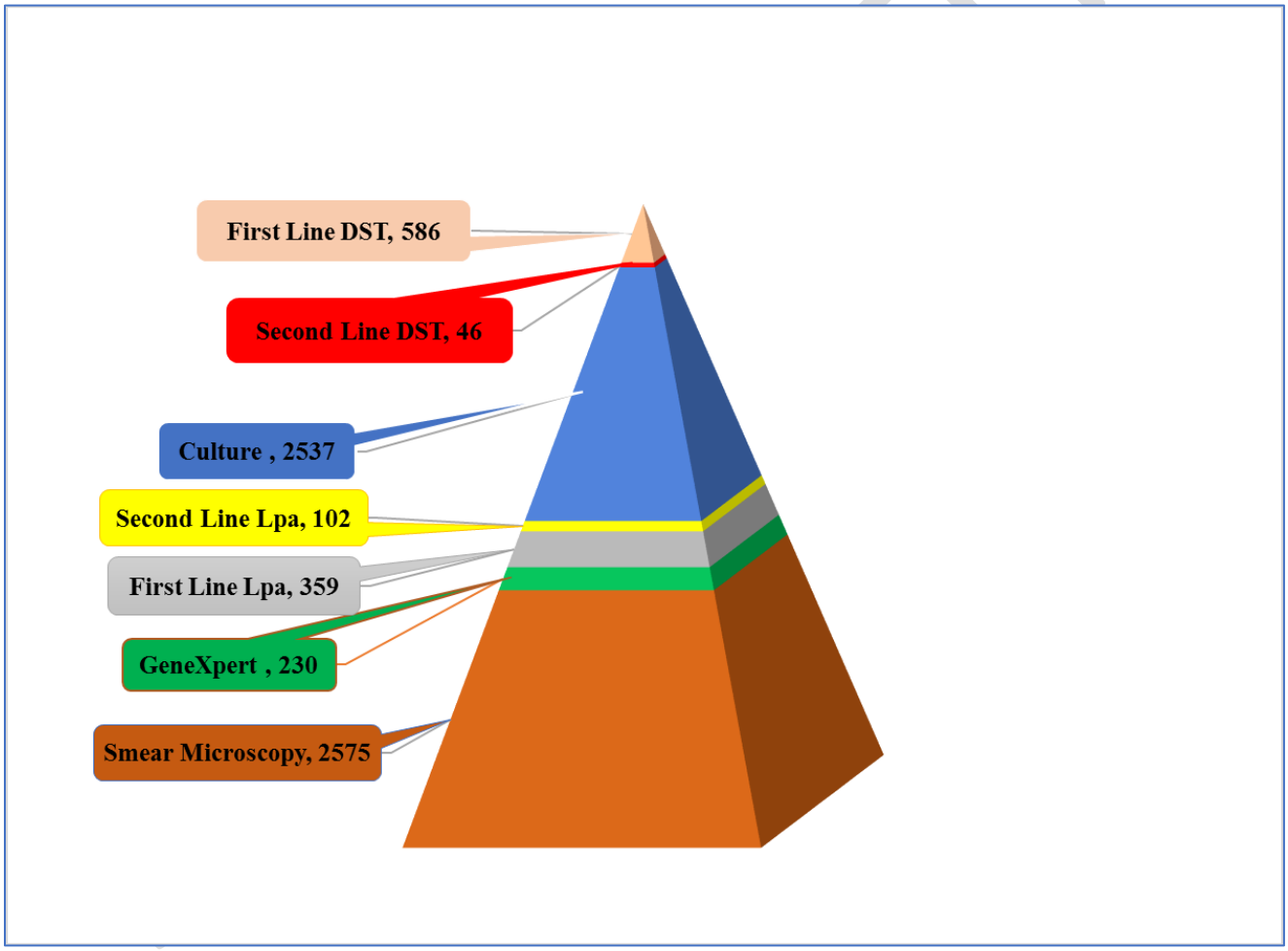


Figure 26: Number of tests done at the CTRL in 2018



The figure 26 above shows numbers of tests done by various techniques such as acid fast bacilli (AFB) smear microscopy,first and second line DST, Culture for mycobacteria TB, fisrt and second line LPA,Xpert MTB/RIF in 2018 at CTRL

4.7 GeneXpert MTB/RIF

National GeneXpert tests summary

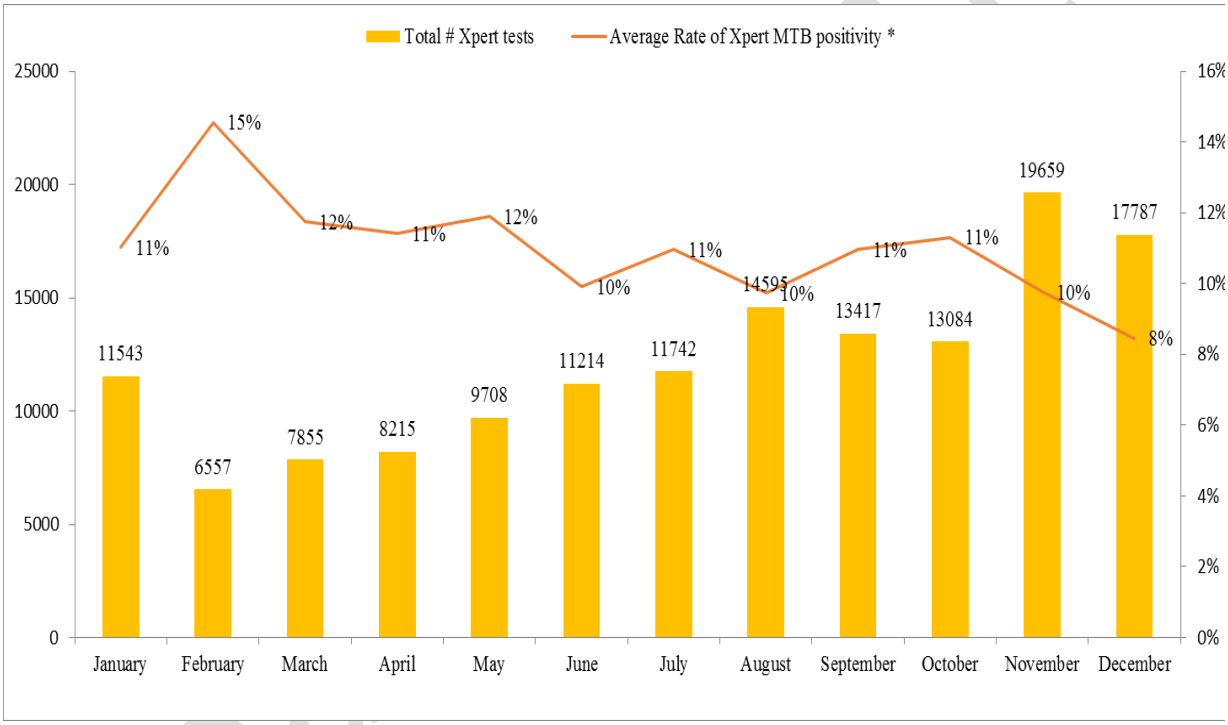
The NTLP continued with scaling up availability of GeneXpert technique guided by the Xpert roll out plan launched in the year 2015. In 2018 all the important indicators were within the recommended ranges, the error rate was 4.94%, invalids 1.15% and No result 2.0%. Of the 145,376 tests performed, specimens with Rifampicin Resistance were 718 (0.12%) and average cartridge consumption of 74% annually (see Table 11).

The CTRL has played a significant role in the GeneXpert role out plan and it's Implementation. By the end of 2018 the country had 214 GeneXpert machines installed in different sites and out of those 103 (48%) had GxAlert system installed as well. Real time Data are collected for all the tests performed by the machines installed with the GxAlert system and uploaded into the server once the tests complete. The CTRL strives to manually collect data for machines without the GxAlert installation. The GxAlert system continues to be a very effective and useful means of communication giving timely Data and analysis reports for all the operations.

Table 18: National GeneXpert test results summary 2017 and 2018

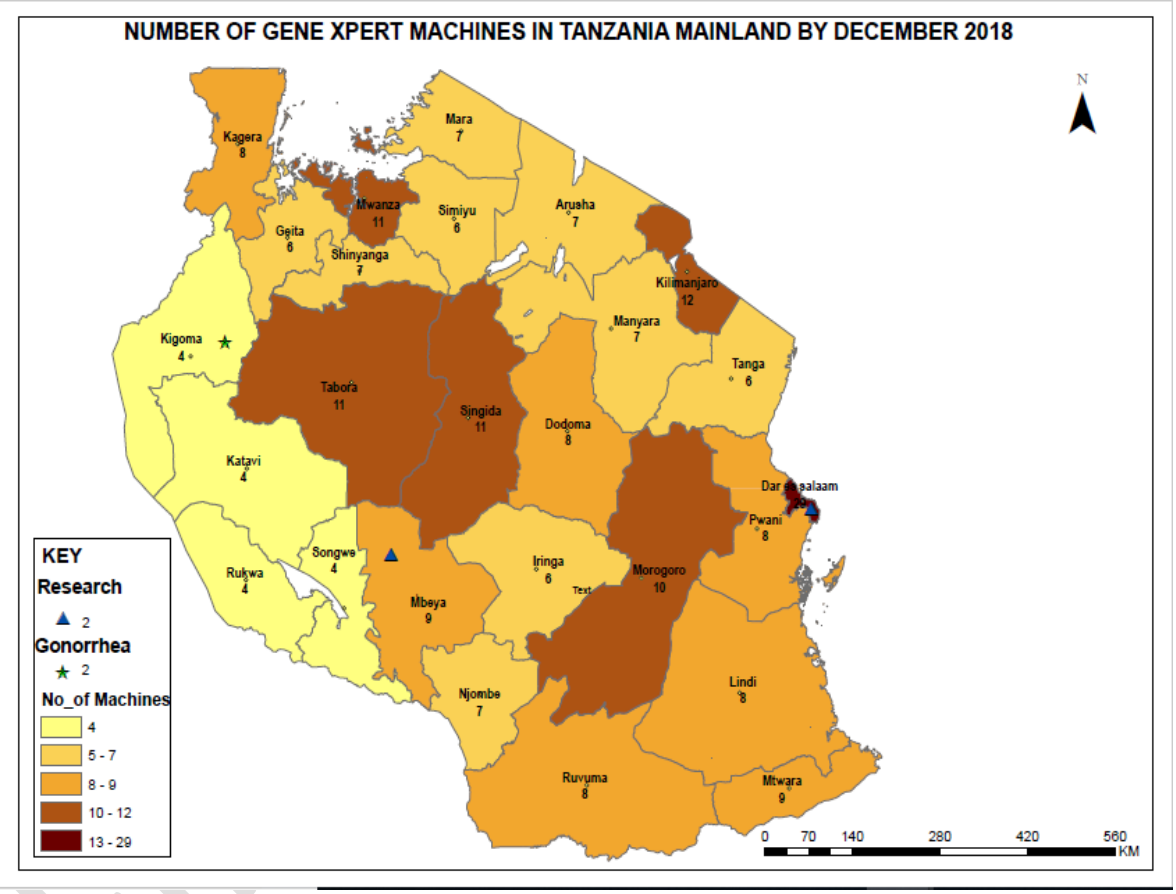
Measures	Total (2017)	TOTAL (2018)
Total # Xpert tests	**72998**	**145376**
Total # Xpert MTB-	**56684**	**117298**
Total # MTB+ RIF sens	**10145**	**14430**
Total # MTB+ RIF res	**564**	**718**
Total # MTB+ RIF indeterminate	**124**	**284**
Total # error results	**2521**	**6741**
Total # Invalids	**1007**	**2014**
Total # No results	**1153**	**3891**
Average Rate of Xpert MTB positivity *	**15%**	**11%**
Average Rate of error results	**4%**	**5%**
Average Rate of Rif resistance **	**0.80%**	**4%**
Average capacity being utilized	**37%**	**74%**

Figure 27: Trend of Average Rate of Xpert MTB positivity per month for Nat GeneXpert in 2018



National GeneXpert MTB/RIF positive rates show huge fluctuations throughout the year with an average of at least 4%. The main reason is these were all the Xpert tests carried out during the year without separating Routine specimen from other tests such as Studies, Quality Assessment or Verification specimens

Figure 28: GeneXpert installation by the end of 2018



4.8 *Proficiency tests performance*

The Laboratory was involved in proficiency tests for all the tests carried out at the CTRL and Table 19 below gives more details.

Table 19: 2018 CTRL Proficiency tests performance summary

PT Provider	Proficiency Panel	Survey	Date received	Date results submitted	Results /Score	Acceptable /Unacceptable
GeneXpert MTB/RIF						
CDC/ATLANTA	GeneXpert MTB/RIF	2018-A		30/12/2018	100%	acceptable
CDC/ATLANTA	GeneXpert MTB/RIF	2018-B		30/12/2018	100%	acceptable
SMEAR MICROSCOPY						
UGANDA TUBERCULOSIS LABORATORY PT SCHEME	Microscopy		15/02/2018	19/02/2018	100%	acceptable
WHO/AFRO	Culture		15/03/2018	20/06/2018		
LPA						
UGANDA TUBERCULOSIS LABORATORY PT SCHEME	First Line LPA		15/02/2018	15/03/2018	Awaiting results	
DST						
WHO/AFRO	LJDST Second Line		14/09/2018	15/01/2019	Awaiting results	
WHO/AFRO	LJDST First Line		14/09/2019	15/01/2019	Awaiting results	

4.8.1 National AFB Smear Microscopy External Quality Assessment laboratories summary

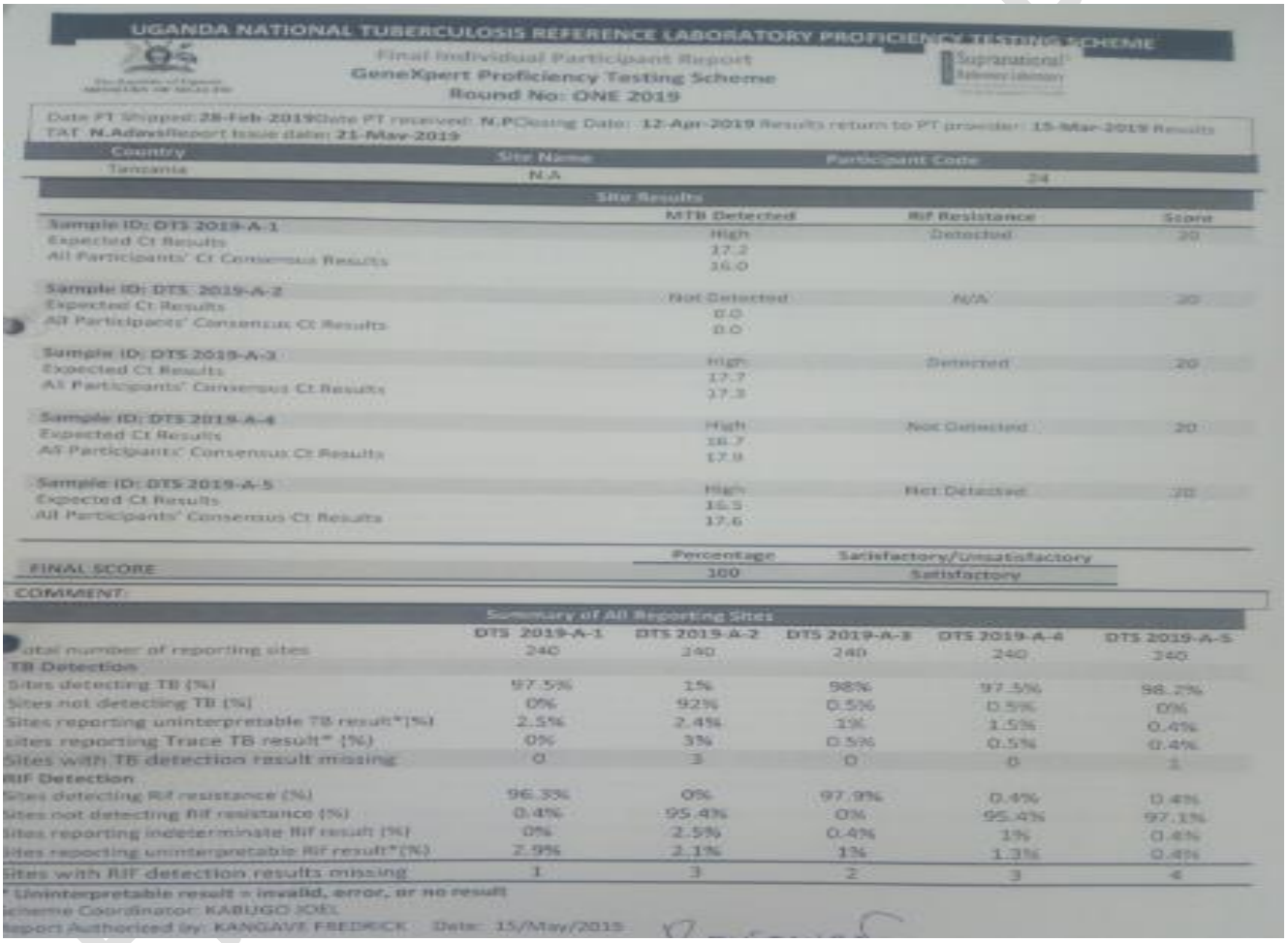
The CTRL coordinates the AFB smear Microscopy EQA blinded rechecking country wide. Table 14 gives more details of the participation of laboratories

Table 20; Summary results of rechecking

COUNTRY	Tanzania	Year	2018
		Number	Percentage
Number of operational laboratories		1,191	
Number of those rechecked (%)		991	83%
Number of positive slides rechecked		3,475	
Number of negative slides rechecked		22,780	
Overall percentage positives in the laboratories' routine		8%	
Overall percentage high false positives		3%	
Overall percentage false negatives		0%	
Overall percentage true positives / all positives		98%	
Overall detection proportional to the controllers		0.96	
Number (%) of laboratories with more than 1 HFP		17	2%
Number (%) of laboratories with 100% true positives		205	88%
Number (%) of laboratories with 95-99% true positives			
Number (%) of laboratories with 90-94% true positives		4	2%
Number (%) of laboratories with 85-89% true positives		9	4%
Number (%) of laboratories with <85% true positives		16	7%
Number of laboratories with insufficient data to calculate this parameter		757	
Number (%) of laboratories with more than 1 FN		12	1%
Number (%) of laboratories as good as controllers at detecting positives (>=95%)		726	96%
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%)		3	0%
Number (%) of laboratories doing poorly at detecting positives (50-74%)		16	2%
Number (%) of laboratories doing very poorly at detecting positives (<50%)		13	2%

Number of laboratories with insufficient data to calculate this parameter	232	

Figure 29: Certificates of CTRL Proficiency tests performance



UGANDA NATIONAL TUBERCULOSIS REFERENCE LABORATORY PROFICIENCY TESTING SCHEME

Final Individual Participant Report
GeneXpert Proficiency Testing Scheme
Round No: ONE 2019

Supranational Reference Laboratory

Date PT Shipped: 28-Feb-2019 Date PT received: N.P Closing Date: 12-Apr-2019 Results return to PT provider: 15-May-2019 Results TAT: N.A dews Report issue date: 21-May-2019

Country	Site Name	Participant Code
Tanzania	N.A	24

Site Results

	MTB Detected	Rif Resistance	Score
Sample ID: DTS 2019-A-1			
Expected Ct Results	High	Detected	20
All Participants' Ct Consensus Results	17.2 16.0		
Sample ID: DTS 2019-A-2			
Expected Ct Results	Not Detected	N/A	20
All Participants' Consensus Ct Results	0.0 0.0		
Sample ID: DTS 2019-A-3			
Expected Ct Results	High	Detected	20
All Participants' Consensus Ct Results	17.7 17.3		
Sample ID: DTS 2019-A-4			
Expected Ct Results	High	Not Detected	20
All Participants' Consensus Ct Results	18.7 17.9		
Sample ID: DTS 2019-A-5			
Expected Ct Results	High	Not Detected	20
All Participants' Consensus Ct Results	16.5 17.6		

FINAL SCORE	Percentage	Satisfactory/Unsatisfactory
	100	Satisfactory

COMMENT:

Summary of All Reporting Sites

	DTS 2019-A-1	DTS 2019-A-2	DTS 2019-A-3	DTS 2019-A-4	DTS 2019-A-5
otal number of reporting sites	240	240	240	240	240
TB Detection					
Sites detecting TB (%)	97.5%	1%	98%	97.5%	98.2%
Sites not detecting TB (%)	0%	92%	0.5%	0.5%	0%
Sites reporting uninterpretable TB result*(%)	2.5%	2.4%	1%	1.5%	0.4%
sites repocting Trace TB result* (%)	0%	3%	0.5%	0.5%	0.4%
Sites with TB detection result missing	0	3	0	0	1
Rif Detection					
Sites detecting Rif resistance (%)	96.3%	0%	97.9%	0.4%	0.4%
Sites not detecting Rif resistance (%)	0.4%	95.4%	0%	95.4%	97.1%
Sites reporting indeterminate Rif result (%)	0%	2.5%	0.4%	1%	0.4%
Sites repocting uninterpretable Rif result*(%)	2.9%	2.1%	1%	1.3%	0.4%
Sites with RIF detection results missing	1	3	2	3	4

* Uninterpretable result = invalid, error, or no result

Scheme Coordinator: KABUGO JOEL

Report Authorized by: KANGAVE FREDRICK Date: 15/May/2019

XPERT MTB/RIF ASSAY PERFORMANCE EVALUATION PROGRAM PARTICIPANT'S RESULTS SUMMARY

2017 Panel C

International Laboratory Branch, Division of Global HIV/AIDS and TB, Centers for Disease Control and Prevention

Country	Testing Site	PT-ID Number
Tanzania	Central TB Reference Lab - Dar es Salaam	03001

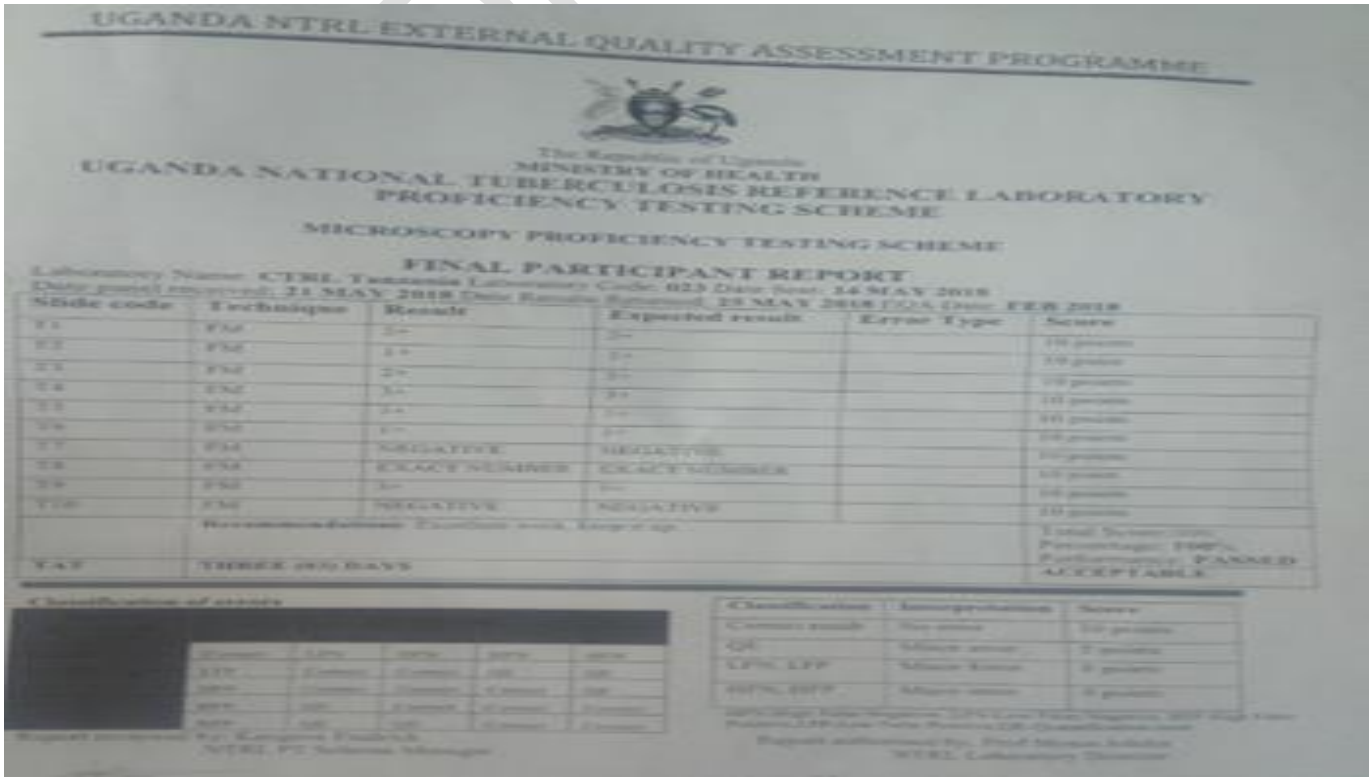
Summary of All Reporting Sites

	2017-C-1	2017-C-2	2017-C-3	2017-C-4	2017-C-5
Total number of reporting sites	521	522	523	523	523
TB Detection					
Sites detecting TB (%)	516 (99.0)	2 (0.4)	515 (98.7)	510 (97.5)	504 (96.3)
Sites not detecting TB (%)	2 (0.4)	511 (97.9)	1 (0.2)	3 (0.6)	6 (1.2)
Sites reporting uninterpretable TB result* (%)	3 (0.6)	8 (1.5)	6 (1.1)	8 (1.5)	10 (1.9)
Sites not reporting TB detection result (%)	0 (0.0)	1 (0.2)	0 (0.0)	2 (0.4)	3 (0.6)
RIF Detection					
Sites detecting Rif resistance (%)	509 (97.7)	2 (0.4)	8 (1.6)	505 (96.5)	500 (95.6)
Sites not detecting Rif resistance (%)	6 (1.1)	511 (97.9)	502 (96.2)	4 (0.8)	7 (1.3)
Sites reporting indeterminate Rif result (%)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.4)	0 (0.0)
Sites reporting uninterpretable Rif result* (%)	3 (0.6)	8 (1.5)	6 (1.1)	8 (1.5)	10 (1.9)
Sites not reporting Rif detection result (%)	3 (0.6)	1 (0.2)	6 (1.1)	4 (0.8)	6 (1.2)

* Uninterpretable result = invalid, error, or no result

Site Results

	MTB Detected	Rif Resistance	Score
Sample ID: 2017-C-1			
Expected Results	Medium	Detected	
All Participants' Consensus Results	Low	Detected	
Central TB Reference Lab - Dar es Salaam	**Low**	**Detected**	20
Sample ID: 2017-C-2			
Expected Results	Not Detected	N/A	
All Participants' Consensus Results	Not Detected	N/A	
Central TB Reference Lab - Dar es Salaam	**Not Detected**	**N/A**	20
Sample ID: 2017-C-3			
Expected Results	Medium	Not Detected	
Consensus Results	Medium	Not Detected	
Central TB Reference Lab - Dar es Salaam	**Low**	**Not Detected**	20
Sample ID: 2017-C-4			
Expected Results	Medium	Detected	
All Participants' Consensus Results	Low	Detected	
Central TB Reference Lab - Dar es Salaam	**Low**	**Detected**	20
Sample ID: 2017-C-5			
Expected Results	Medium	Detected	
All Participants' Consensus Results	Low	Detected	
Central TB Reference Lab - Dar es Salaam	**Low**	**Detected**	20
	Percentage	**Satisfactory/Unsatisfactory**	
FINAL SCORE	100	Satisfactory	



UGANDA NTRL EXTERNAL QUALITY ASSESSMENT PROGRAMME

The Republic of Uganda
MINISTRY OF HEALTH
UGANDA NATIONAL TUBERCULOSIS REFERENCE LABORATORY
PROFICIENCY TESTING SCHEME

MICROSCOPY PROFICIENCY TESTING SCHEME

FINAL PARTICIPANT REPORT

Laboratory Name: CDRL Tanzania Laboratory Code: 823 Date Rec: 14 MAY 2018
Date panel received: 21 MAY 2018 Date Results Released: 23 MAY 2018 PTA Date: FEB 2018

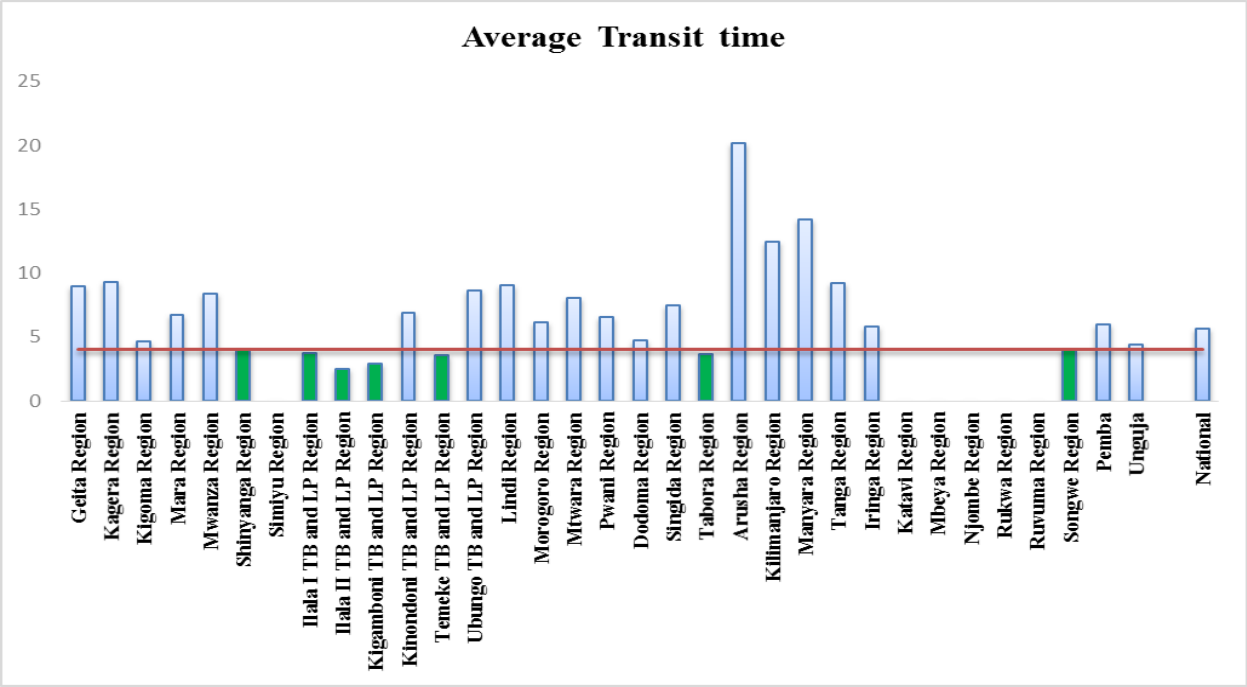
Slide code	Technique	Result	Expected result	Error Type	Score
1.1	FM	2+	2+		10 points
1.2	FM	1+	1+		10 points
1.3	FM	2+	2+		10 points
1.4	FM	3+	3+		10 points
1.5	FM	2+	2+		10 points
1.6	FM	1+	1+		10 points
1.7	FM	NEGATIVE	NEGATIVE		10 points
1.8	FM	EXACT NUMBER	EXACT NUMBER		10 points
1.9	FM	1+	1+		10 points
1.10	FM	NEGATIVE	NEGATIVE		10 points
	Remarks/Action: Position was too high up				Total Score: 100 Percentage: 100% Performance: PASSED ACCEPTABLE
T.A.T	THREE (03) DAYS				

Table 21: Transit time Analysis for specimens received at the CTRL (*Transit time Summary)*

Region	Recomended Transit time of sputum (Within 4 days) %	Transit time of Isolate (Within 60 days) %	Date collation of Specimen not provided %	Maximum Transit Time (isolate) in days	Maximum Transit Time(Sputum) in days
Geita Region	0.00%	23.81%	0.00%	115	9
Kagera Region	14.29%	0.00%	0.00%	66	24
Kigoma Region	16.67%	13.33%	4.76%	120	6
Mara Region	25.00%	23.85%	2.65%	136	9
Mwanza Region	40.20%	33.33%	2.50%	122	137
Shinyanga Region	60.00%	36.36%	0.00%	123	9
Simiyu Region	0.00%	22.22%	10.00%	115	
Ilala I TB and LP Region	72.18%		0.45%		40
Ilala II TB and LP Region	83.02%		8.49%		51
Kigamboni TB and LP Region	78.26%		0.00%		28
Kinondoni TB and LP Region	58.60%		0.70%		146
Temeke TB and LP Region	90.86%		0.86%		236
Ubungo TB and LP Region	70.37%		3.70%		69
Lindi Region	21.11%		2.22%		82
Morogoro Region	45.70%		2.65%		96
Mtwara Region	31.51%		1.37%		36
Pwani Region	54.30%		0.39%		55
Dodoma Region	50.00%	57.41%	15.52%	93	7
Singida Region		57.14%	0.00%	80	9
Tabora Region	66.67%	87.50%	0.00%	70	6
Arusha Region	5.56%	14.63%	2.60%	123	31
Kilimanjaro Region	6.84%	26.09%	14.52%	168	23
Manyara Region	30.77%	7.69%	5.13%	133	27
Tanga Region	34.48%	33.33%	2.13%	100	19
Iringa Region	40.00%	50.00%	0.00%	126	9
Katavi Region		0.00%	0.00%	180	
Mbeya Region		8.70%	4.35%	171	
Njombe Region		0.00%	0.00%	115	
Rukwa Region		0.00%	0.00%	116	
Ruvuma Region		4.76%	4.76%	188	
Songwe Region	100.00%	0.00%	0.00%	65	4
Pemba	50.00%	31.58%	0.00%	110	11
Unguja	42.86%	26.92%	0.00%	141	8
Not provided	0.00%	0.00%	66.67%	188	
Total	62.80%	26.53%	2.59%	188	236

The transit time defined as the time specimen collected to the time specimen received at the Reference Laboratory could have noticeable effect on the specimens' viability. Sputum specimens' transit time was from 1 to 236 days, sixty three percent (63%) of sputum specimens in 2018 were received within 4 days and 27 % in more than 4 days.

Figure 30: Sputum average transit time per region



4.9 Roadmap towards Accreditation

Laboratory Quality Management System

The TB Laboratories Accreditation process started in 2014. In 2018 all the six culture laboratories were continuing with the different stages of Strengthening TB Laboratories Quality Management towards Accreditation (TB SLMTA).

The Central Tuberculosis Reference Laboratory (CTRL) was accredited by the Southern African Development Community Accreditation Service (SADCAS) under **ISO 15189:2012** Medical laboratories - Requirements for quality and competence in October 2018 with accreditation number **MD 30** Published by SADCAS website www.sadcas.org.

The accreditation certificate covers the discipline of Microbiology for the tests of Gene Xpert MTB/RIF and Auramine O-Phenol staining for AFB smear Microscopy scopes.

The accreditation provides evidence that the CTRL meets the international standard requirements in implementation of quality management system that ensures delivery of eminent laboratory services for patient care.

The Quality Management System implementation milestone started through the Stepwise Laboratory Improvement Process toward Accreditation (SLIPTA) since 2014 under the World Bank support through East Africa Public Health Laboratory Network Project (EAPHLNP).

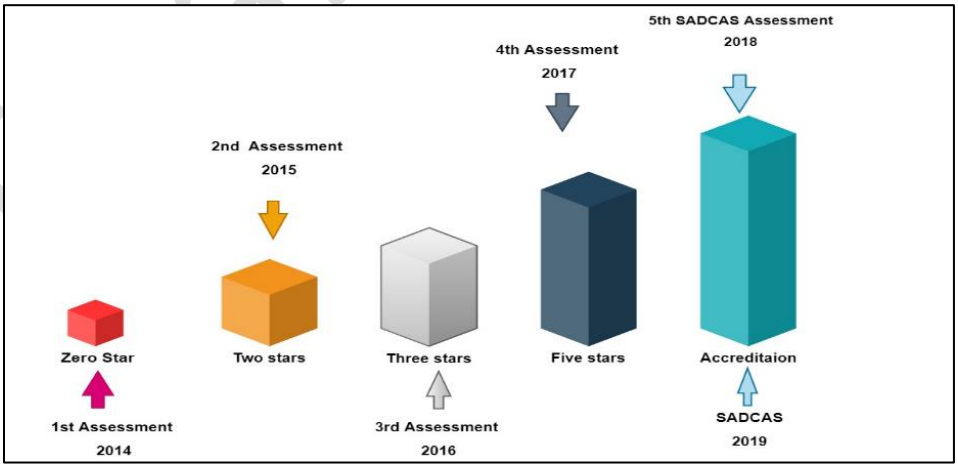
CTRL managed to achieve good grades following different periodic ASLM assessments conducted between 2014 and 2018.

In the African Society Laboratory Medicine (ASLM) assessment done in April 2018 the laboratory scored five star and hence recommended to seek international accreditation. The National Tuberculosis and Leprosy Programme under which the CTRL is a part provided all the necessary support in the accreditation process that included provision of quality management system trainings, Equipment calibration/services and Periodic mentorship programmes that facilitated the achievement of the accreditation

CTRL plans to attain the level of Tuberculosis Supra National Laboratory after being able to sustain the accreditation status for yearly periodic accreditation cycle. Additionally, the CTRL endeavours to attain accreditation in the Line Probe Assay, Culture and Phenotypic Drug Susceptibility Testing scopes as well

After accreditation the CTRL continuous to support other Tuberculosis Laboratories (Regional Referral Hospital Laboratories) in the country to ensure that all TB test methods/scopes (Gene Xpert and AFB Smear Microscopy) are enrolled in their accreditation plans and efforts are in place to accomplish the task.

Figure 31: Road map towards routine quality improvement at the CTRL



4.10 Data quality and documentation at the CTRL 2018

The information on the NTLP TB Laboratory request forms received at the CTRL are entered into the CTRL LIS, a web based Relational Database to effectively manage specimens and associated data. They assist the laboratory in specimens' tracking and procedures and workflows optimisations. The data are entered in the database by data clerks, they are then reviewed before available results are entered and then reviewed as well. After successful completion of all these procedures the results are then disseminated to the requesters through the ETL system or by the EMS. However, there are some pitfalls mainly due to incomplete form filling and inappropriate request forms from the requesters across the country. This leads some challenges including poor quality of data gathered at the CTRL. This affects the whole process of specimens' examinations, results disseminations and sometimes complete loss of results. Table 7 summarises the pitfalls

Figure 32: Summary of Data completeness submitted to the CTRL

4.11 Trainings, Supportive Supervisions and Mentorships in 2018

During the year 2018, the laboratory staffs were involved in varieties of mentorships, trainings and supportive supervisions covering all the techniques in different areas of the country. Table 22 below summarises the activities.

Supportive supervisions.

Supervision and mentorship are among the core functions of the CTRL in respect to lower level laboratory facilities. The CTRL itself is supervised by the Supranational Reference Laboratory of Uganda and Antwerp Belgium at least once per year. However, during the study period supervision was conducted as part of continuous training and corrective action.

Figure 33: Network for Trainings, Supportive Supervisions and Mentorships in 2018

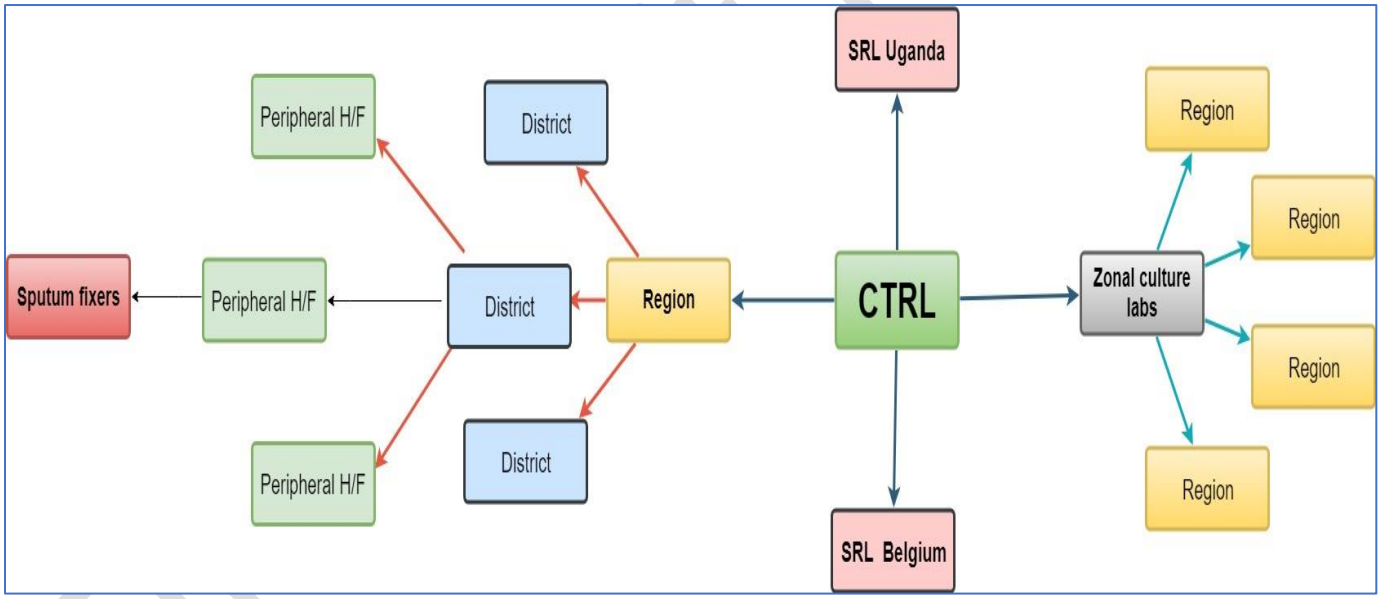


Table 22: Trainings, Supportive Supervisions and Mentorships 2018

S/N	Type of training and Supportive supervision date conducted	Number of regions visited	Region	Funder
1	Supportive Supervision for laboratories performing GeneXpert TB testing and AFB smear Microscopy to December 2018	17	Selected Regions	CDC
2	Mentorship for zonal TB culture laboratory.14th to 19th October 2018	1	Dodoma	Global fund
3	Mentorship for zonal TB culture laboratory.14th to 19th October 2018	1	Pemba	Global fund
4	GeneXpert Users' Training 19/03/2018 to 13/04/2018	1	Dodoma	Global fund
5	Supportive Supervision for laboratories performing testing and AFB smear Microscopy and EQA 13 OF august to 17 of august 2018	2	Mwanza and Geita	Global fund
6	Mentorship for zonal TB culture laboratory.17th to 19th October	1	Mbeya	Global Fund
7	Mentorship for zonal TB culture laboratory.22nd to 27th October, 2018r	1	Mwanza	Global Fund
8	Mentorship for zonal TB culture laboratory.15th to 19th October, 2018	1	Kilimanjaro	Global Fund
9	Supportive Supervision for laboratories performing testing and AFB smear Microscopy and EQA 11th to 15th June 2018	1	Mara	Global Fund
10	EQA Supportive Supervision from 30th April to 4th May 2018	1	Morogoro	CDC
11	EQA Supervision from 6th to 10th August 2018	1	Pwani	KNCV
12	Supportive Supervision from 2th to 10th February 2018	1	Ilala	KNCV
13	Supportive Supervision from 2th to 10th February 2018	1	Kinondoni	KNCV

5 PROGRAMME SUPPORT ACTIVITIES

5.1 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), USAID/PEPFAR and 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 as well as some Lab commodities are procured by Global Fund grant through Global Drug Facility (GDF). Part of Isoniazid for IPT among PLHIV is procured by GHSC through USAID/PEPFAR. On the other hand, the GF through Medical Stores Department (MSD) supports procurement of some laboratory reagents equipment and supplies (those not available through GDF), furthermore, the GF and PEPFAR through GDF procures single therapy Isoniazid tables. Leprosy medicines are procured through the World Health Organization (WHO).

5.2 Stock status

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 laboratory reagents, port clearing, storage and distribution of pharmaceuticals and medical supplies. All commodities procured by GDF are cleared by appointed IDA clearing agent i.e Bollore International and MSD. 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 Districts through DTLC/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, (2018) 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. Likewise some quantities of Isoniazid for IPT among PLHIV was received from USAID/PEPFAR.

The table below summarizes the stock quantities of anti-TB and anti-leprosy medicines received and used for 2018.

Table 23: stocks of anti-TB and anti-leprosy medicines distributed in the country in 2018.

S/NO	Item name	Unit of Measure	Total quantity
1	Isoniazid+Rifampicin - FDC	75mg+150mg - Blister-672	**88,613.00**
2	Ethambutol+Isoniazid+Rifampicin - (RHE) FDC	275mg+75mg+150mg - Blister-672	**1,487.00**
3	Ethambutol+Isoniazid+Pyrazinamide+Rifampicin (RHZE)- FDC	275mg+75mg+400mg+150mg - Blister-672	**56,748.00**
4	Rifampicin	150mg - Blister - 100	**158.00**
5	Ethambutol	400mg - Blister-672	**44**
6	Bedaquiline (Bdq)	100mg – P/188	**220**
7	Clofazimine	100mg - Bottle-100	**1380**
8	Capreomycin	1g - Vial of 1 g	**6,500.00**
9	Cycloserine	125mg - Blister-100	**34.00**
10	Cycloserine	250mg - Blister-100	**867.00**
11	Ethionamide	125mg - Bottle-100	**46.00**
13	Kanamycin	1g/5ml - Vial - 10 * 1g	**3,049.00**

S/NO	Item name	Unit of Measure	Total quantity
14	Linezolide	600mg - Bottle-10	**1068**
15	Levofloxacin	100mg - Blister-100	**46**
17	Levofloxacin	500mg - Blister-100	**559.00**
18	PAS Sodium	5.52g (equiv 4g PAS) - Sachet - 25 * 4g	**173**
19	Pyrazinamide	150mg - Blister-100	**71**
21	Isoniazid	300mg - Blister-672	**202,756.00**
22	Ethambutol	100mg - Blister-100	**4,723.00**
23	Isoniazid+Rifampicin - FDC	50mg+75mg - Blister-84	**22,936.00**
24	Isoniazid+Pyrazinamide+Rifampicin - FDC	50mg+150mg+75mg - Blister-84	**14,018.00**
25	Isoniazid	100mg - Blister-100	**16088**
27	Moxifloxacin	100mg - Bottle-100	**15.00**
28	Moxifloxacin	400mg - Bottle-100	**973**
29	Prothionamide	250mg - Blister-100	**1466**
30	Pyridoxine	- Blister-50	**8724**
31	S & N 1.5	pack - 50	**1185**
32	Water for injection	5ml - Ampoule - 100 * 5ml	**802**
33	MBA	Blister - 1	**31104**
34	MBC	Blister - 1	**576**
35	PBA	Blister - 1	**1728**

7.2 Community empowerment activities

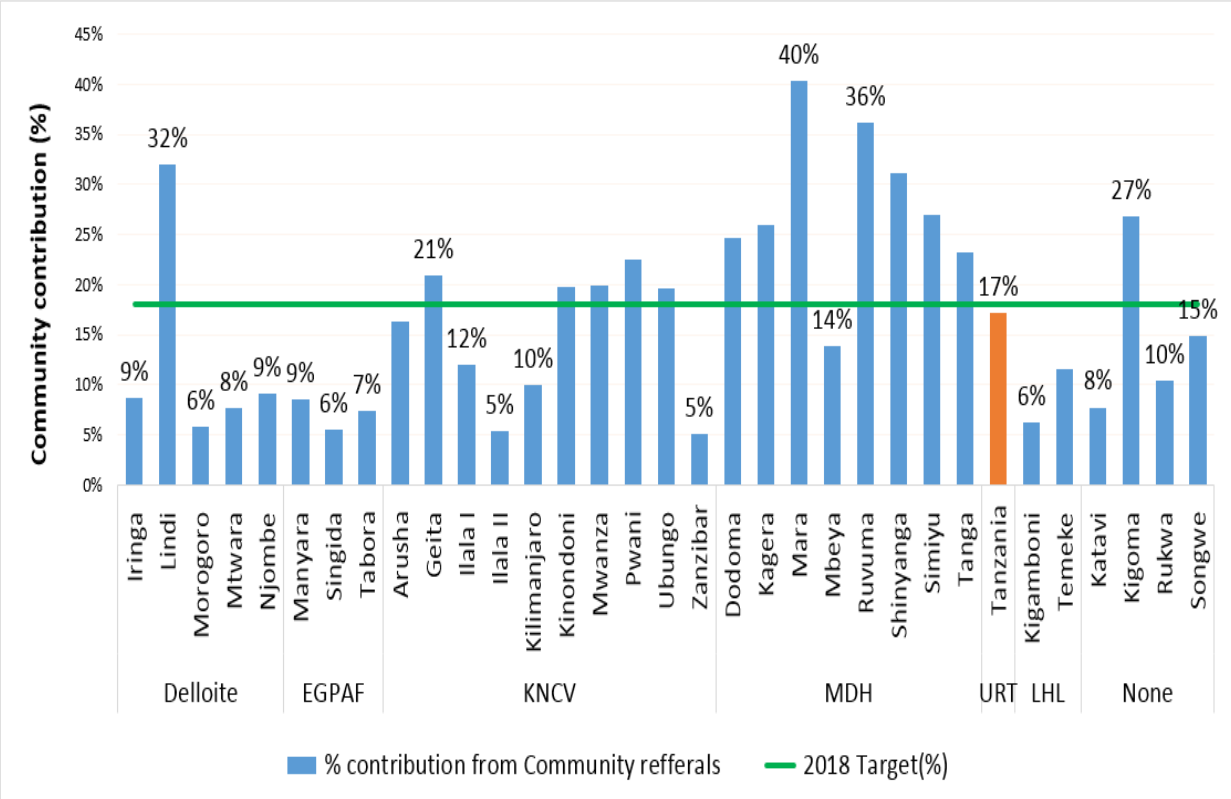
The implementation of the community-based activities has been implemented by the Program in collaboration with LGA's, implementing partners, and community networks. Community-based intervention represents a wide range of activities carried out at the community level by community members themselves, in partnership with community Health Volunteers who serve as a link to the health care system. These interventions promote effective communication, community empowerment, and participation to generate demand for improved quality of TB and leprosy prevention, diagnosis, treatment, and care services.

In 2018, NTLP in collaboration with Implementing Partners including AMREF/ MDH, KNCV, EGPAF and Delloite supported the following interventions:

- Patients Centres treatment for adherence strengthening
- Community Active TB case Finding including Contact tracing for adults and children by Community Health Volunteers
- Engagement of traditional healers for TB screening among their clients
- Hiring Boda-boda for sputum transportation from high volume facilities to GeneXpert sites.

With all these interventions, community TB managed to contribute 17% of all TB cases notified in the Country. 82% of all TB patients were supervised under Home Based DOT of which 90% were successfully treated similar to Health facility DOT.

Figure 33: The following graph is the contribution per region in 2018:



The graph shows that, most of regions under Global Fund support reached the target set. These regions include Mara, Tanga, Dodoma, Kagera, Ruvuma, Shinyanga, Simiyu. Most of regions which are supported by Boresha Afya project did not perform well as expected. These regions put little efforts in community TB interventions.

Community TB implementation face a number of challenges including: little funds to support, inadequate supervision as they seem to be less important to some partners and coordinators. In some districts, very few Community Volunteers were engaged, and they were unequally distributed.

NTLP is working towards health Facility based Community engagement to improve CHVs distribution and close monitoring from the health facility level.

7.3 Advocacy, Communication and Social Mobilization (ACSM) activities

Advocacy, communication and social mobilization interventions are the cornerstones of TB control as they cut across all components of the National TB and Leprosy Programme. During the year under review, World Leprosy and TB days were commemorated on 29th January and 24th March 2018 respectively. During the commemoration Government statements were delivered to the public through mass media with an emphasis on all people to take part in the fight against TB and Leprosy diseases. Sensitization and screening campaign activities were also conducted throughout the country. 27,815 people were reached during the campaign. 5,506 of them were screened for TB and 225 were found TB positive, 1 extrapulmonary TB and 11 were diagnosed through chest X-ray and 235 were put on anti-TB treatment.

The participation of policymakers and decision-makers in the fight against TB and leprosy is very crucial in order to ensure TB is given priority. The Parliamentary TB Caucus was launched in September 2018. The Caucus has 47 members who are also members of the Parliamentary Committee on HIV/AIDS.The presence of the network will enable the country to achieve international and national goals for the elimination of TB. “Tanzania TB Caucus” should do the following:

- Identify TB (TB) as a global and national epidemic
- Manage the Government to develop good policies and plans to end TB by 2030.
- Push the Government to give enough money to combat this disease

As part of innovations to find the missing people with TB and put them on treatment, the Ministry of Health, Community Development, Gender, Elderly and Children through the National TB and Leprosy Programme in collaboration with KNCV – Challenge TB Project and Cardno-mHealth PPP Tanzania developed two mobile phone applications built on existing government platforms:

1. A self-screening application to raise awareness and increase case detection; and
2. A treatment adherence application for people who have initiated TB treatment to provide appointment reminders as well as messaging about treatment based on their disease status (e.g., TB, TB/HIV, DR-TB) and infection prevention and control.

Prior to the launch of TAMBUA TB applications, 450 HCW, and 250 community volunteers were oriented on the self-screening and the treatment adherence service. The intervention was officially launched in September 2018. To promote the applications, use, mass media campaigns were conducted through TV and radio. A total of 488 radio spots were aired in major radio stations with high coverage to promote the use of the self-screening mobile application. 422 TV spots were broadcasted in popular TV stations. IEC materials and tools for HCWs were developed and distributed accordingly. Regional community radios in 14 regions were also used. Since the launch of the initiative from September 2018 to December 2018, a total of 186,517 people completed the TB self-screening assessment, 134,290 were self-reported presumptive, non- self-reported presumptive were 52,227 and 4,047 patients were enrolled in treatment adherence TB messaging service of which 3,140 were new TB patients, 754-TB/HIV, TB previously treated – 87, 40 TB/DR and 26 were DR/HIV.

Figure 34: TAMBUA TB applications

7.4 Public and Private Partnership (PPP)

TB cases notified by private sector for the year 2018 has been promising, increasing from 10.6 % in 2017 to 19.3% of the total 75,808 cases notified in that year. This 8.7% increment is largely contributed by series of interventions which NTLP has instituted specifically for private providers, just to mention few; 1) capacity building to more than 200 health care providers from private health facilities in 10 regions on TB case finding and management, 2) roll out of the electronic TB register which capture TB data from private health facilities and, 3) provision of 5 GeneXpert machines to support TB diagnostic services in 5 private hospitals in Dar es Salaam. Furthermore, the program has continued to expand TB services in private sector by engaging drug dispensing outlets (ADDOs) in 15 regions where by a total of 450 drug sellers were trained on a referral system of presumptive TB cases for diagnosis to the health facilities. Specifically Iringa and Kagera regions are implementing similar intervention through TUWAFIKIE project which is funded by WHO STOP TB REACH. This project integrate both drug sellers and community health care workers on TB case detection.

In 2019, NTLP will continue to provide support on TB services in private health facilities such as provision of free medicines and other commodities (lab. Reagents and supplies), recording and reporting tools, conducts trainings, Joint mentorship and supportive supervisions as well as sensitization visits to owners of private facilities.

7.5 TB in Mining sector

For the first time in 2018, mining as an occupation was officially captured and reported in both electronic and paper based NTLP registers. In this year a total of 1004 TB cases detected were mineworkers, accounting for 1.3% of the national TB cases notification. Through SADC regional GF ATM grant in collaboration with country implementing partners, TB in the mining (TIMS) initiatives were implemented in 6 districts with large number of artisan mineworkers these districts include; Simanjiro (Mererani), Tarime, Kahama, Msalala and Geita DC and Siha.

Among Key TIMS interventions implemented in the country includes:

1. Sensitization campaigns and systematic TB screening activities
2. Coordination mechanism through multi- sectorial technical working group (TWG)
3. Support TB diagnostic services in mining areas including outreach services
4. Advocacy and health promotion in mining areas.

Despite of these notable achievements, TB in the mining sectors program is still facing some challenges which hinders efforts to reduce the burden of TB in mines, these includes, inadequate financial resource to support for TIMS interventions, Limited access to health and TB services, low involvement of private sector and low awareness on TB disease among population in mining areas.

For the year 2019, The NTLP in collaboration with partners and through the support from SADC regional TIMS project intends to scale up of TIMS interventions to engage more mining areas across the country.

7.6 M&E and Operational Research

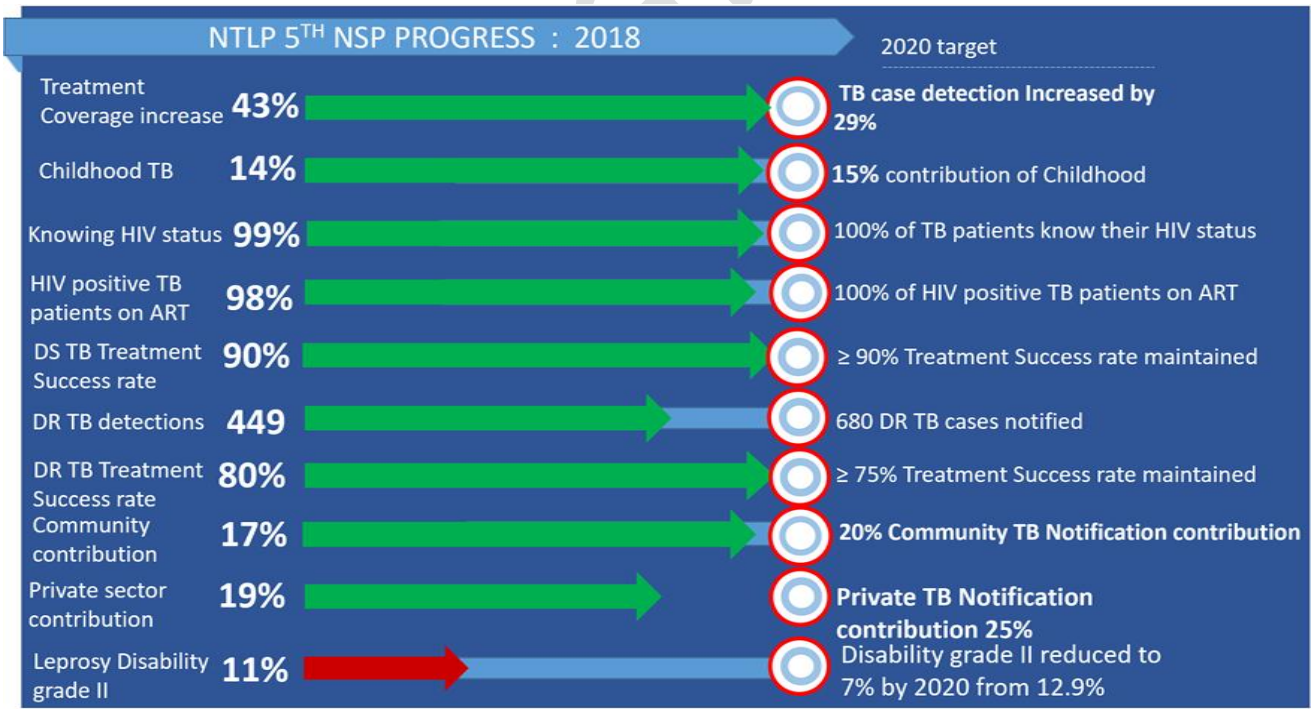
The programme rolled out a TB and leprosy case-based electronic system (DHIS2-ETL) in all districts where by records are being entered per facility. The roll out followed by onsite mentorship to districts and regional TB and leprosy Coordinators on the use of the system. Other activities related to system rollout were provision of 213 laptop computers to TB and Leprosy Coordinators to facilitate data entry, as well as training of 279 healthcare workers from facilities with enabled ICT infrastructure to do data entry on their own.

The Programme implemented the cascaded supportive supervision in its three levels that are: central or ministry level, regional and district levels. Supervision were conducted in collaboration with implementing partners in their respective regions of support.

In this year, data collection for the Drug resistance Survey (DRS) was completed and preliminary results based of GeneXpert tests results were generated and submitted to WHO HQ to be used in the Global TB Report of 2018.

The Program continue to collaborate with KNCV-through Challenge TB grant, to support Postgraduate students to conduct TB related Operational research. Two students were awarded in this year.

Figure 35: NTLP 5TH NSP PROGRESS: 2018



ANNEX 1

Annex 1: TLCU staff by December 2018

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. Ms. Aneth Mbunga – Health Secretary
6. Dr Johnson Lyimo - MDR TB Coordinator
7. Dr Deus Kamara – Leprosy and TB care and Prevention Coordinator
8. Ms. Diana Kasembe – Training Coordinator
9. Dr Joyce Wanze Kohi - TB/HIV Coordinator
10. Dr Allan Tarimo – Public Private Partnership Coordinator
11. Dr Zuweina Kondo-Sushy – Monitoring and Evaluation Officer
12. Mr. Emmanuel Nkiligi – Data Manager
13. Mr. Crispin Mwamkinga – 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. Mrs. Florentina Mallya – Procurement and Supplies Coordinator
19. Ms. Basra Doulla – Head, National TB Reference Laboratory
20. Mr. Salim Bossy – Senior Laboratory Technician
21. Ms. Daphne Mtunga – Laboratory Technician
22. Mr. Amri Kingalu – National TB Reference Laboratory Manager
23. Ms. Christine Chipaga - Data entry clerk
24. Ms. Grace Tairo - Data entry clerk
25. Ms. Khadija Kassim - Data entry clerk
26. Mr. Mashaka Penza - Data entry clerk
27. Mr. Abbakari Msafiri – Data Analyst
28. Mr. Lugano Ross – Accounts Assistant
29. Ms. Sophia Temba - Accountant
30. Mr. Joachim Kizzuri - Accountant
31. Mr. Augustus Machumi – Accountant
32. Mr. Paulo Kalombora – Office Attendant
33. Mr. Raymond Shirima – Data Analyst
34. Mr. Eneas Mdika – Driver
35. Mr. Abdallah Shabani – Driver
36. Mr. Beno Tayari - 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 Pascal Pagali - Kagera
10. Dr Benedict Komba - Tabora
11. Dr Mussa Msallenge – Kigoma
12. Dr Geoffrey Chelangwa – Kilimanjaro
13. Dr Abasi Pegwa – Lindi
14. Dr Neema Chillo – Mara
15. Dr Qamara Qawoga – Manyara
16. Dr Osmunda Mwanyika – 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 Laurent Mhembe – 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