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MINISTRY OF HEALTH

NATIONAL TUBERCULOSIS, LEPROSY AND LUNG DISEASE
PROGRAM

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The NTLD-Program is ISO 9001:2008 QMS Certified

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The NTLD-Program acknowledges the hard work of health care workers at facility level, TB Coordinators, Laboratory, Nutrition personnel, Pharmacists, Nurses, among others at the sub county, county and National level as well as county health management teams who have led the provision of high quality of care to our patients and the good outcomes the NTLD-Program has observed.

The NTLD-Program is grateful to the communities, patients, community health volunteers and the civil society who have played a key role in ensuring the vision of the NTLD-Program is realized in a timely and cohesive manner.

Finally, I would like to thank all those who contributed to the writing and editing of this report.

Dr Jackson Kioko,

Director of Medical Services- Ministry of Health

ABBREVIATIONS AND ACRONYMS

ACSM	Advocacy Communication and Social Mobilization
ADRs	Adverse Drug Reactions
AFB	Acid-Fast Bacilli
ART	Antiretroviral Therapy
BMI	Body Mass Index
CDC	US Centers for Disease Control and Prevention
CDR	Case Detection Rate
CHS	Centre for Health Solutions – Kenya
CHV	Community Health Volunteer
CMLT	County Medical Laboratory Technologist
CNR	Case Notification Rate
CPT	Co-trimoxazole Preventive Therapy
CTLC	County Tuberculosis and Leprosy Coordinator
CU	Central Unit
DOTS	Directly Observed Therapy Short Course
DRS	Drug Resistance Survey
DST	Drug Susceptibility Testing
EQA	External Quality Assurance
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HMIS	Health Management Information System
IEC	Information, Education and Communication
IOM	International Organization for Migration
IPC	Infection Prevention and Control
IPT	Isoniazid Preventive Therapy
IUATLD	International Union against Tuberculosis and Lung Disease
KAPTLD	Kenya Association for the Prevention of Tuberculosis and Lung Disease
KEMRI	Kenya Medical Research Institute
KNBS	Kenya National Bureau of Statistics
KNH	Kenyatta National Hospital
LPA	Line Probe Assay
LTFU	Lost To Follow Up
MER	Monitoring Evaluation and Research
MDR TB	Multi-Drug Resistant Tuberculosis
NFM	New Funding Model
NPHLS	National Public Health Laboratories Service
NTLD-P	National Tuberculosis, Leprosy and Lung Disease Program
NTRL	National Tuberculosis Reference Laboratory
PAL	Practical Approach to Lung Health
PLHIV	Persons Living with HIV
SCMLT	Sub County Medical Laboratory Technologist
SCTLC	Sub County Tuberculosis and Leprosy Coordinator
SMART	Specific, Measurable, Achievable, Realistic and Time-bound
TB ARC	Tuberculosis Accelerated Response and Care
TSR	Treatment Success Rate
UNHCR	United Nations High Commissioner for Refugees
USAID	United States Agency for International Development
WHO	World Health Organization
XDR-TB	Extensively Drug Resistant Tuberculosis

Anti-Tuberculosis Drugs		Ofx	Oflaxacin
Ami	Amikacin	PAS	Para-aminosalicylic acid
E	Ethambutol	Pt	Prothionamide
Eth	Ethionamide	R	Rifampicin
H	Isoniazid	S	Streptomycin
Lfx	Levofloxacin	Z	Pyrazinamide

Vision, Goal, Impact Targets and Strategic Objectives for NTLD-Program

Vision	To reduce the burden of lung disease in Kenya and render Kenya free of Tuberculosis and Leprosy
Goal	To accelerate the reduction of TB, leprosy and lung disease burden through provision of people-centered, universally accessible, acceptable and affordable quality services in Kenya
Impact targets	<p>By 2018:</p> <ol style="list-style-type: none"> 1. Reduce the incidence of TB by 5%, compared to 2014 <ol style="list-style-type: none"> 1. Reduce the prevalence of MDRTB among new patients by 15% 2. Reduce the incidence of TB among PLHIV by 60% 2. Reduce mortality due to TB by 3% 3. Reduce the proportion of affected families who face catastrophic costs due to TB, leprosy & other lung diseases 4. Reduce by 50% the proportion of cases with grade 2 morbidity due to leprosy 5. Reduce mortality due to chronic lung diseases ;e.g. COPD, asthma
Strategic objectives	<ol style="list-style-type: none"> 1. Sustain the gains, in the context of a newly devolved health system 2. Intensify efforts to find "missing" cases 3. Reduce transmission 4. Prevent active disease and morbidity 5. Enhance the quality of care for chronic lung diseases



The World TB Day 2015 procession marching to Siaya County Stadium led by Siaya County Deputy Governor, Hon. Wilson Ongango and former Head of Department of Preventive and Promotive Health Services, Dr Jackson Kioko

EXECUTIVE SUMMARY

The year 2015 marked the close of 15 years of the United Nations (UN) Millennium Development Goals (MDGs) that committed countries to various time bound targets. MDG Six was to combat HIV/AIDS, Malaria and other diseases including Tuberculosis (TB). Six out of the 22 high burden countries met all the key targets namely Ethiopia, Uganda, Brazil, China, Philippines and Viet Nam.

Kenya surpassed the set target on TB case detection rate and treatment success rate of 75% and 86% respectively, for both new and relapse cases, though there was a mixed bag of results as far as the MDG indicator framework was concerned. There is indication that TB incidence cases could be on the decline. It is noted that the target on reducing TB prevalence and mortality by 50% compared to the situation in 1990 was not on track. This is due to absence of evidence from impact evaluations.

KEY INDICATOR PERFORMANCE

Indicator	Performance
TB Prevalence Per 100,000	266
Mortality Per 100,000	22
Case detection rate (%)	80
Case Notification Rate per 100,000	191
TB Treatment success rate (%) All forms	90%
MDR TB TSR	82%
MDR TB Surveillance	86%

Supported by Global Fund and other partners, the national TB prevalence survey, which will provide better estimates for TB prevalence in Kenya, kicked off in 2015. It targets 72,000 people in 102 clusters.

The planned mortality estimates survey did not take place due to technical challenges. However, measures have been put in place to revamp the vital registration system to provide a reliable data source for estimation of mortality due to TB. Capacity building of responsible health workers on the international classification of disease (ICD10) has already begun. A Drug

Resistance survey to ascertain the burden of anti TB drug resistance was completed in December 2015. The official report is expected in the third quarter of 2016.

In 2015, a total of 81,518 TB cases were notified of which 36,817 (45%) were new bacteriologically confirmed, 24,235 (30%) were new clinically diagnosed while new extra pulmonary TB and previously treated TB cases were 13,690 (17%) and 6,776 (8%) respectively. Nationally, 97% of TB cases had been tested for HIV with a resultant TB/HIV confection rate of 31%. The coverage of Cotrimoxazole Therapy and Anti Retroviral Therapy (ART) uptake was 99% and 94% respectively. The treatment success rate (Cohort 2014) stands at 87% and 90% for all forms of TB and new bacteriologically confirmed TB cases respectively.

Drug Resistant Tuberculosis (DR TB) continues to be a major public health challenge in Kenya. In 2015, a total of 433 DR TB cases were diagnosed and enrolled on treatment. About 15% of these cases were refugees diagnosed in Somalia and enrolled on MDR-TB treatment at Dadaab Refugee Camp treatment site. The treatment success rate (Cohort 2013) is 83%, which is above the global average of 48%. The surveillance of DR-TB was strengthened by building the capacity of counties to diagnose DR TB cases early and also improve TB surveillance among the HIV population and children through procurement and distribution of 50 GeneXpert machines.

In total, 124 Leprosy cases were diagnosed and enrolled on treatment in 2015. The cases were mainly distributed along the coastal counties and some parts of the Western region.

The country signed a Global Fund grant based on the new funding model (NFM) of about US\$ 62 Million to combat Tuberculosis. The grant runs from October 2015 to December 2017, through a modular approach of funding. The five modules are: TB care and prevention (25%), TB/HIV (7%), MDR-TB (23%), HSS-PSM (21%), HSS-M&E (12%) and program management (2%). This also marked the end of the GF TB SSF grant, which ran from 2011 to 2015. As part of co-financing, the Government of Kenya allocated KES 300 million to strengthen the commodity security situation. The Government also continued to deploy staff to the NTLD-Program in an effort to strengthen its capacity to deliver its mandate.

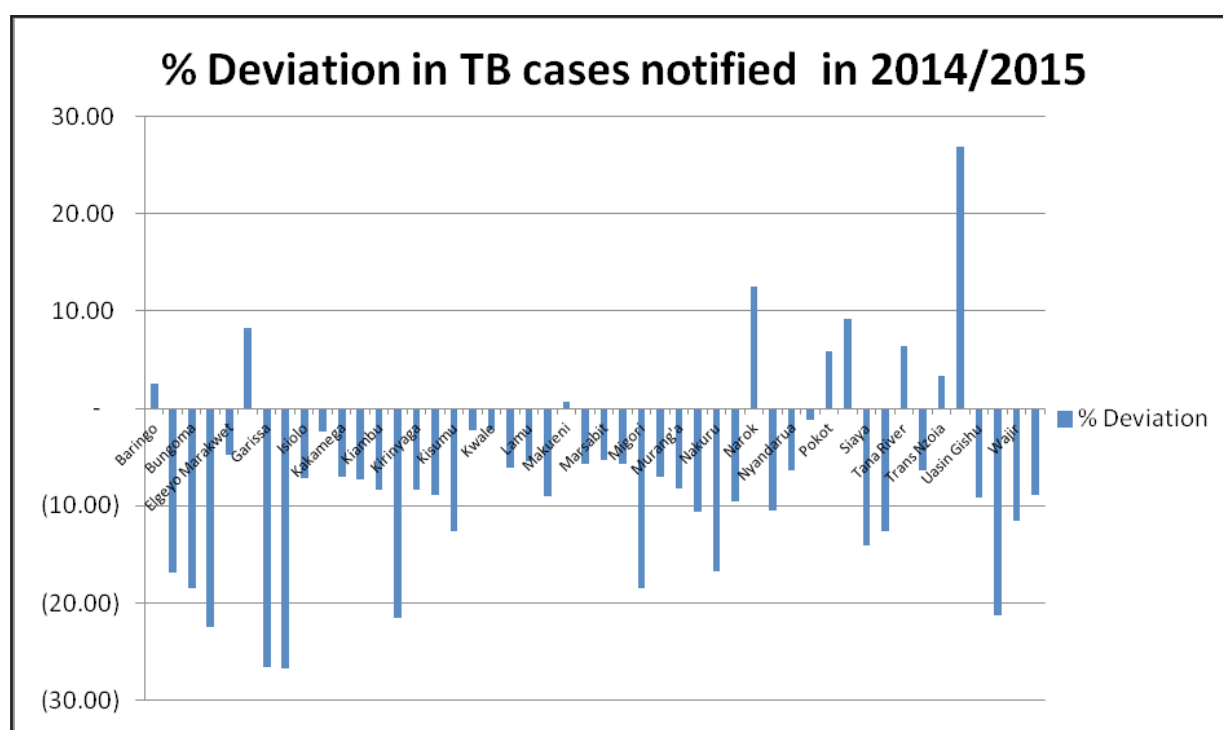
The national World TB Day event was held in Siaya County and graced by Mama Sarah Obama, as one of the chief guests at the occasion.

1. DRUG SUSCEPTIBLE TUBERCULOSIS

1.1. Case Finding

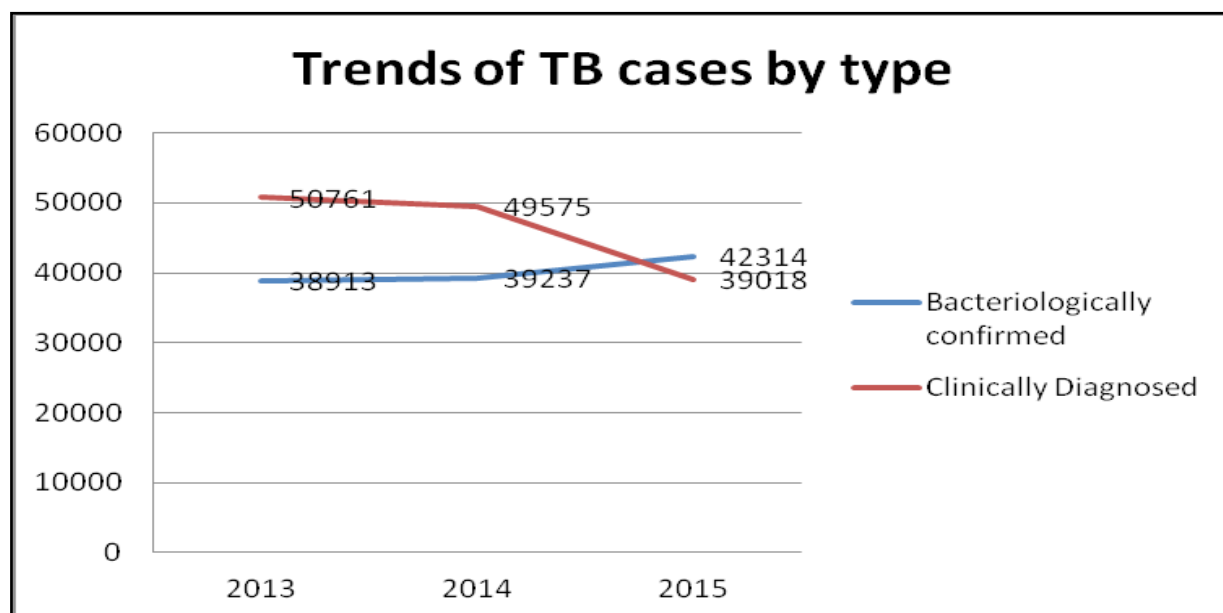
In 2015, a total of 81,518 cases were notified. This is a decline of 8.4% of the cases notified in 2014. Of the cases notified in 2015, 74,742 were new while 6,776 were previously treated cases. The greatest percentage decline in cases notified was in Homabay (-26.72%) with the greatest increase in cases being in Turkana at 26.85%. Nairobi County notified the highest total number of cases while Lamu notified the least with 12,385 and 211 cases respectively.

Figure 1: Deviation of TB cases notified (2014 – 2015)



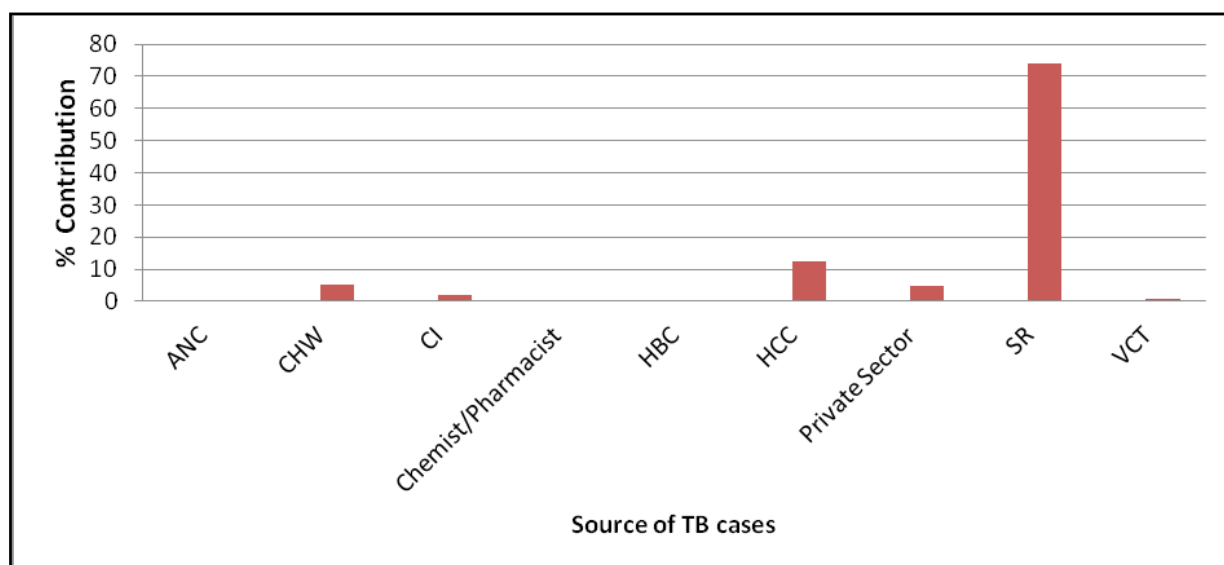
Bacteriologically confirmed pulmonary TB cases rose from 39,237 in 2014 to 42,314 in 2015 while there was a notable decline in clinically diagnosed cases from 49,575 in 2014 to 39,018 in 2015. This is as a result of the scale up of the use of GeneXpert for TB diagnosis, which is more sensitive and can detect even a small number of bacilli.

Figure 2: Trends of TB cases by type



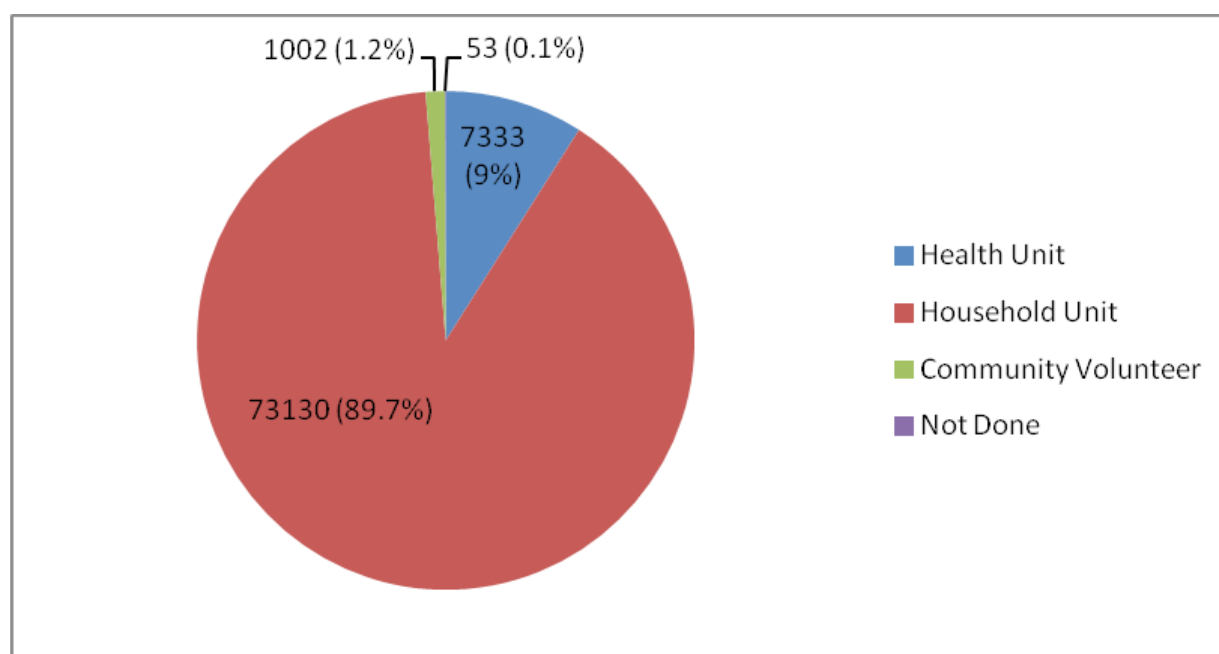
The majority of the TB cases notified were self referrals (74%) while 12.3% of all TB cases were referred from HIV care clinics. The proportion of patients referred by the community was 5.4%.

Figure 3: Sources of TB cases



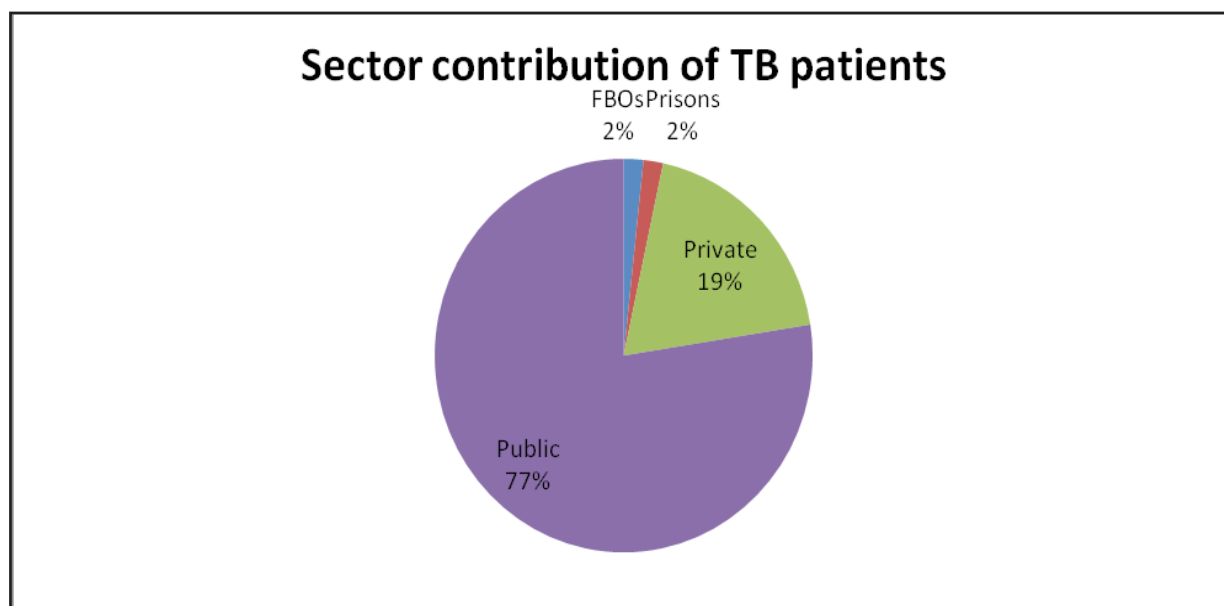
Community Health Workers supported 0.1 % of the TB patients on treatment while household members carried out Directly Observed Therapy (DOT) for 89.7% of patients on TB treatment. This raised the need to scale up community interventions to support patients on TB treatment to ensure better treatment outcomes.

Figure 4: Who provides Directly Observed Therapy?



The private sector contributed 19% of all TB patients notified. These cases were reported from 743 private facilities, which represented 21% of all facilities offering TB treatment. This has been achieved through strengthening of the public-private collaboration in TB control. There has been an integration and implementation of the NTLD-Program treatment guidelines into the private sector hence the significant contribution of cases.

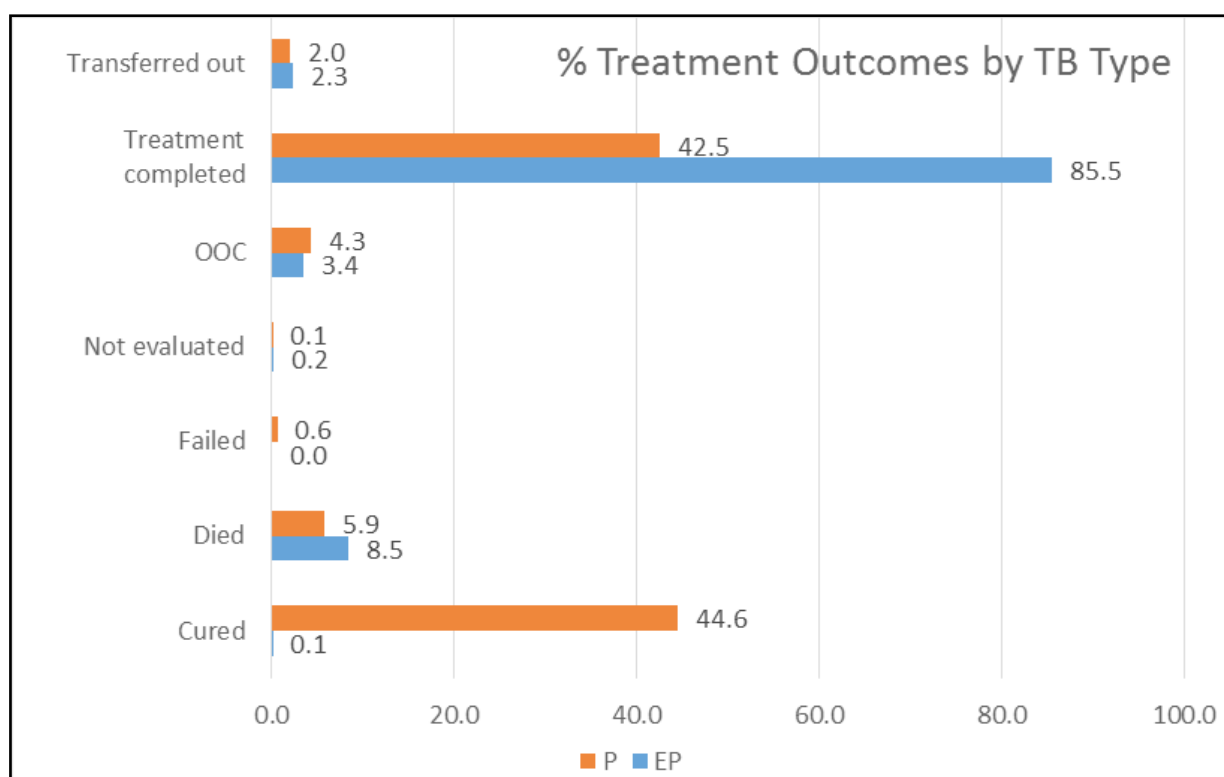
Figure 5: Contribution of TB cases by sector



1.2. TB Treatment Outcomes

The new WHO definitions of TB treatment outcomes were used in the 2015 report where treatment success rate is calculated for all new TB cases. Based on the new definition, the treatment success rate for Cohort 2014 is 89% against a target of 90%. This can be associated with the increase in TB deaths (6%), especially among patients with cases of pulmonary TB, which is approximately three times more than deaths among patients with extra pulmonary TB. In addition, mortality among TB/HIV co-infected patients and those with low body mass index (BMI) was observed. Counties with a treatment success rate (TSR) of less than 85% were Samburu, Siaya, Homabay and Nandi, while those with a TSR of more than 95% were Wajir, Lamu and Mandera.

Figure 6: Treatment outcomes for all forms of new TB cases



The treatment success rate among previously treated TB cases was 82% with Marsabit, Mandera and Wajir having TSRs of above 90% and Samburu, Nandi, Lamu and Trans Nzoia counties having TSRs below 70%.

Figure 7: Treatment success rate among previously treated TB cases per county

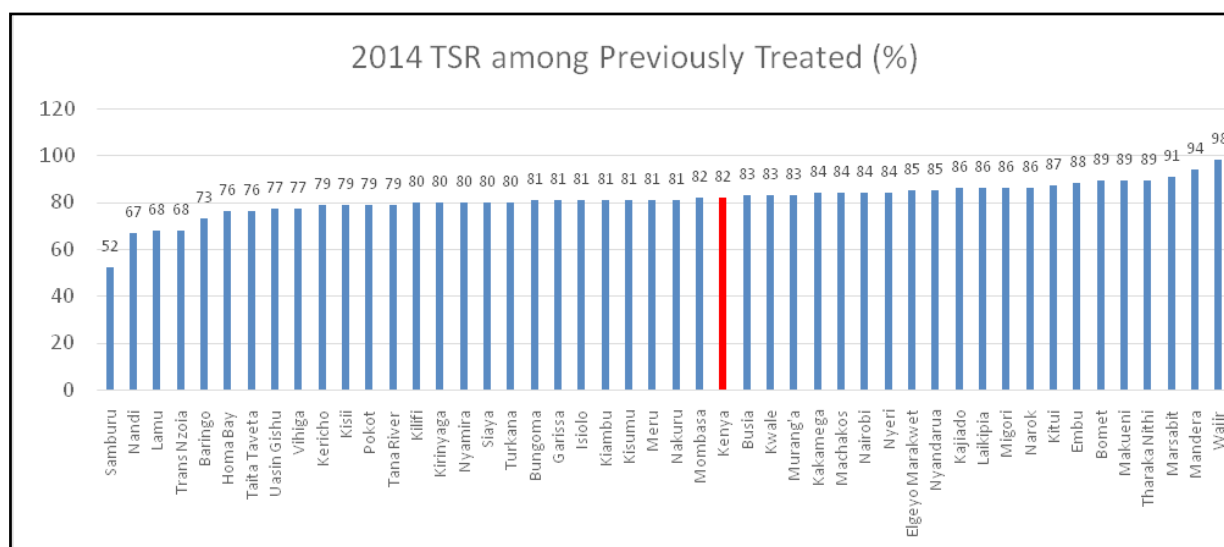
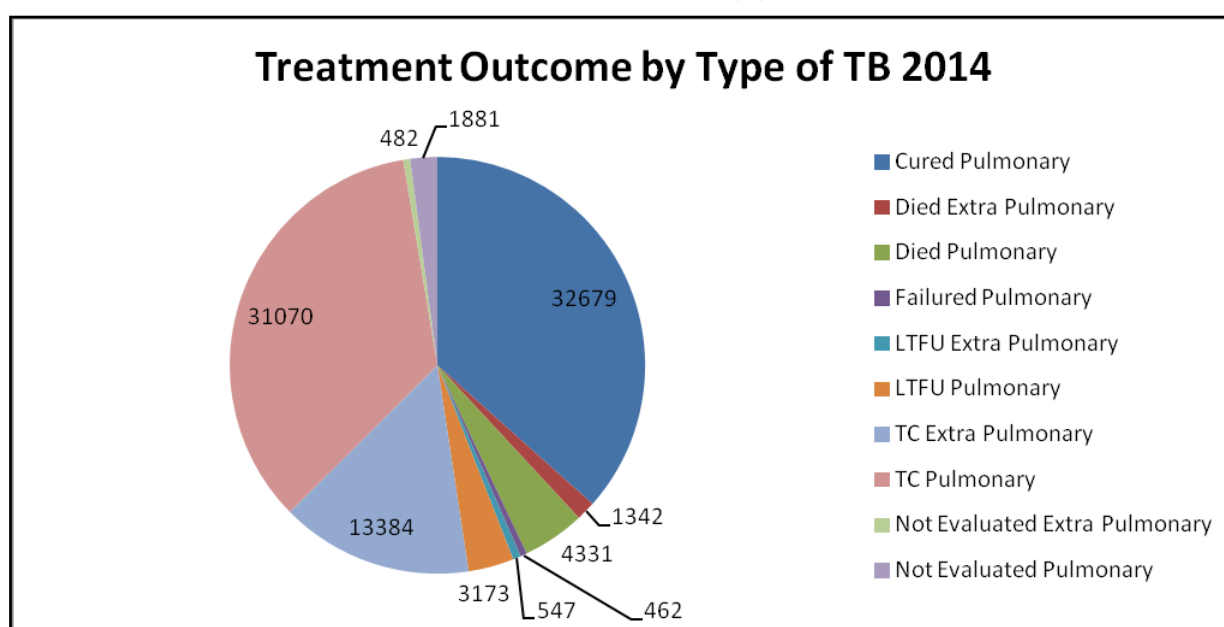


Table 1: Treatment success rate among previously treated TB cases

Patient Type	Cured	Died	Failed	Not Evaluated	LTFU	TC	TO	Total
New	36.9	6.1	0.4	0.1	3.8	50.6	2	100
R+	75.3	6.1	2.2	0.2	7.2	6.3	2.6	100
R-	0.7	10.9	0.1	0.1	5.1	80.4	2.7	100
RAD	28.6	8.6	0.7	0.4	17.1	41.5	3.1	100
REP	0.1	11.2	0	0.5	4.1	81	3.2	100
Failures	74	2.6	7.9	2.2	7	4.4	1.8	100

Loss to follow up rates and high death rates significantly contributed to the noted low treatment success rates. Kenya reported an average loss to follow up rate of 4% and TB death rate of 6%. Homabay, Nandi, Siaya and Taita Taveta reported the highest TB death rates (11% - 13%) while Garissa, Lamu, Wajir, Marsabit, Mandera, and Turkana reported death rates below 4%. Samburu and Pokot counties reported highest loss to follow up rates (10% – 12%), while Nyamira, Kitui, Wajir and Mandera reported <1% lost to follow up rates.

Figure 8: Treatment outcome by type



2. CHILDHOOD TUBERCULOSIS

2.1. Case Finding in Children

Children (those between the ages of zero to 14 years of age) form a special category of TB patients because of the challenges related to TB diagnosis and treatment. The challenges include: limited availability of quality chest X-ray services, sputum collection among those who cannot expectorate and treatment regimen comprising of a combination of multiple drugs.

Children comprise 8.5% (6,968) of the total TB cases with county proportions ranging from 4.6% in Murang'a to 17.8% in Turkana. This is a decline from 9.5% reported in 2014. Of all the children notified, 52.6% were below the age of five years and 47.4% are between the ages of five and 14. This reiterates the importance of integrating child TB screening and diagnostic activities with other Maternal and Neonatal Child Health services.

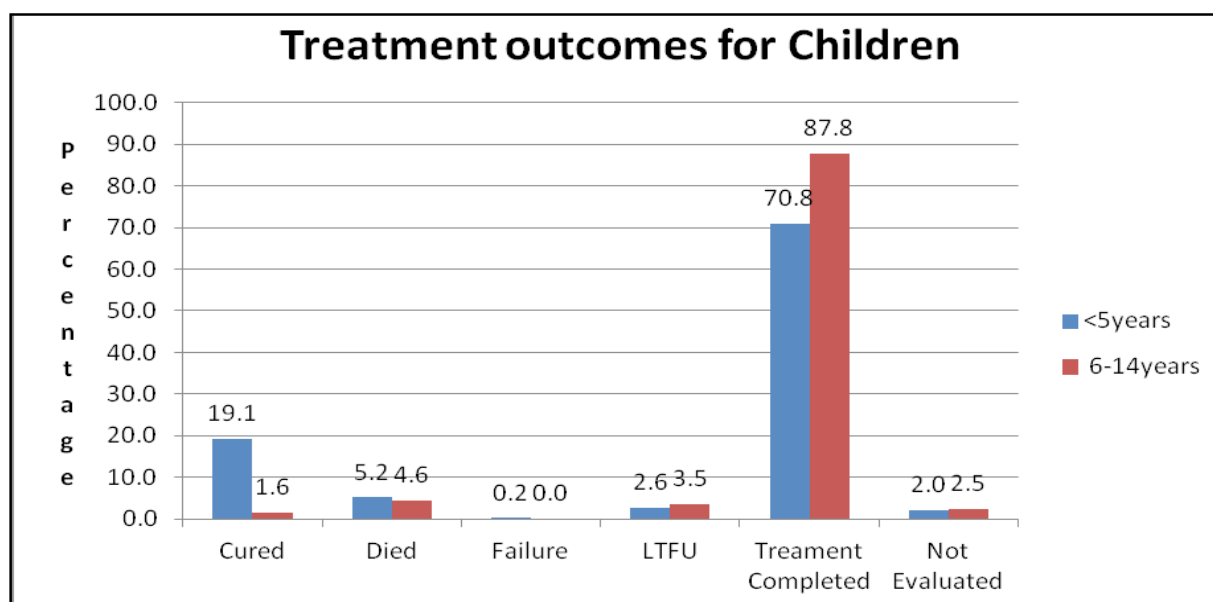
In 2015, the NTLD-Program intensified training of health care workers (HCWs) on childhood TB through the support of the GFATM, USAID and other funding and implementing partners. This saw over 20 training sessions held for health care workers on childhood TB as a strategy to improve their knowledge on TB in children. This is still far from addressing the immense training gaps that exist among health care workers on child TB care and management. It however goes a long way in increasing the index of suspicion among health care workers on TB in children. The NTLD-Program is also developing job aids and guidelines for health care workers to suspect, diagnose and treat childhood TB.

Through GeneXpert services, 3,060 children were screened for TB. This is 9% of all GeneXpert tests (33,944) done and notified by age of patient. Of all these GeneXpert tests, children under five years of age were 2.3%, while those between the ages of six and 14 years were 6.7%. GeneXpert tests were positive among 6.2% of children under five years of age and 6.5% among those between the ages of six and 14 years of age. Children under five years of age found to have Rifampicin resistance stood at 1.2% (9 cases) while 0.3% (8 cases) were found among children between the ages of six and 14 years. This implies the significant gains to be achieved in both TB case detection and identification of Rifampicin resistance among children through GeneXpert testing. Towards this end, the NTLD-Program is due to conduct targeted mentorship and on-job training programs to HCWs in specific centers of excellence to improve their skills in obtaining sputum among children. It also reinforces the need for a robust contact tracing and follow-up program for child TB contacts that are the most likely culprits for TB disease.

2.2. Treatment Outcomes in Children with TB

Of all the children initiated on TB treatment, the treatment success rate for children under the age of five years was 89.9 %, while that of children between the ages of six and 14 years of age was 89.4% (Figure 9). Mortality is higher among children under the age of five years of age (5.2%) than those between the ages of six and 14 years (4.6%).

Figure 9: Treatment Outcomes for Children



This is most likely due to the higher likelihood of severe and disseminated TB in this age group, difficulties in obtaining sputum for bacteriological confirmation and a limited availability and cost limitation of X-rays for diagnosis of TB among these children.

Aggressive TB contact tracing to identify children under the age of five years will enable initiation of Isoniazid Preventive Therapy (IPT) to prevent TB in this group while developing HCW capacity to obtain sputum through gastric aspiration will enhance earlier and more accurate diagnosis hence better treatment outcomes.

In 2016, the NTLD-Program will be rolling out improved pediatric TB formulations that are easier to use. This is expected to make it easier for health care workers to correctly and effectively provide the correct treatment for children. It will also help caregivers in providing DOT without the need to remember complex combinations of different pills for the treatment of TB in children. Better treatment compliance among the children is anticipated as the pill burden will be reduced especially for children with other co-morbidities.

2.3. TB/HIV in Children

HIV counseling and testing services for children have improved significantly over the years. HIV testing among children notified in 2015 was 94%, with a TB/HIV co-infection rate of 27%. The children enrolled on ART were 95%.

The emphasis is on early diagnosis of HIV and immediate ART for children with TB. The approval of the use of Efavirenz among children under three years of age who have HIV and develop TB is a great milestone towards the treatment of these children. It will minimize the need for alternative ART regimens using the weak triple nucleotide therapy. Further emphasis on timing of ART initiation within eight weeks of TB diagnosis will be the focus of the TB/HIV integration. There will also be an emphasis of TB screening among children with HIV and initiation of IPT for those found not to have active TB disease. Further emphasis will be laid on nutrition screening, diagnosis and treatment of malnutrition among children with TB.

In 2016, the NTLD-Program will roll out the presumptive TB register across various patient entry points, which is envisioned to improve TB screening and case detection for children receiving other maternal and neonatal child health services. Printing and distribution of child TB diagnostic algorithm and treatment guidelines to these other service delivery points is ongoing.

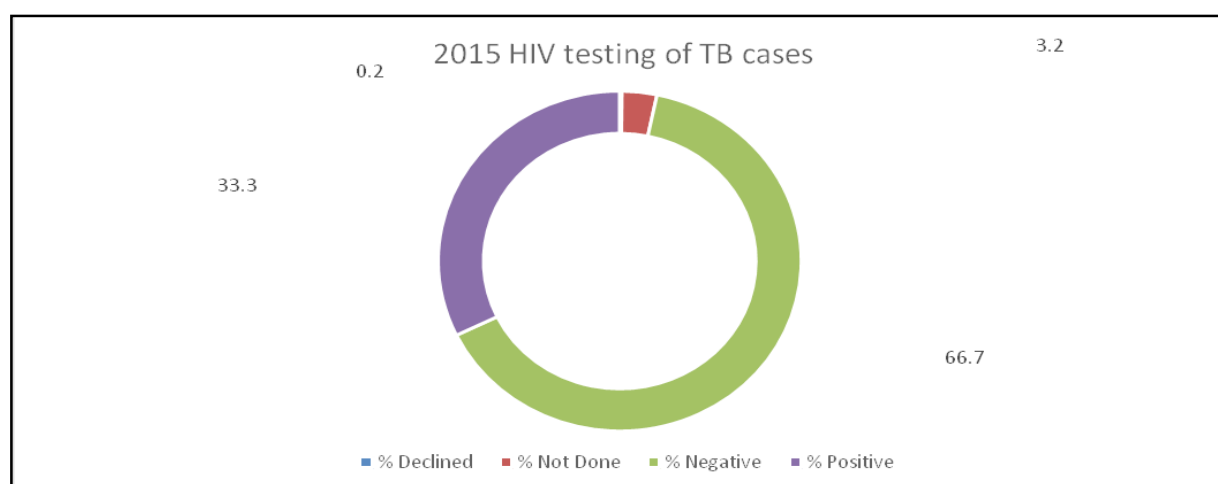
3. TUBERCULOSIS AND HIV

3.1. TB/HIV Case Finding

3.1.1. HIV Testing in TB Patients

Testing for HIV in TB patients has improved from 94% in 2014 to 97% in 2015 at national level, which according to the 2015 Global Tuberculosis Report, is above the global average of 51% and 79% for the Africa region. All counties except Garissa, Marsabit, Mandera, Isiolo, Baringo, Taita Taveta, Pokot, Trans Nzoia and Turkana had testing rates above 95%.

Figure 10: HIV testing among TB patients in 2015

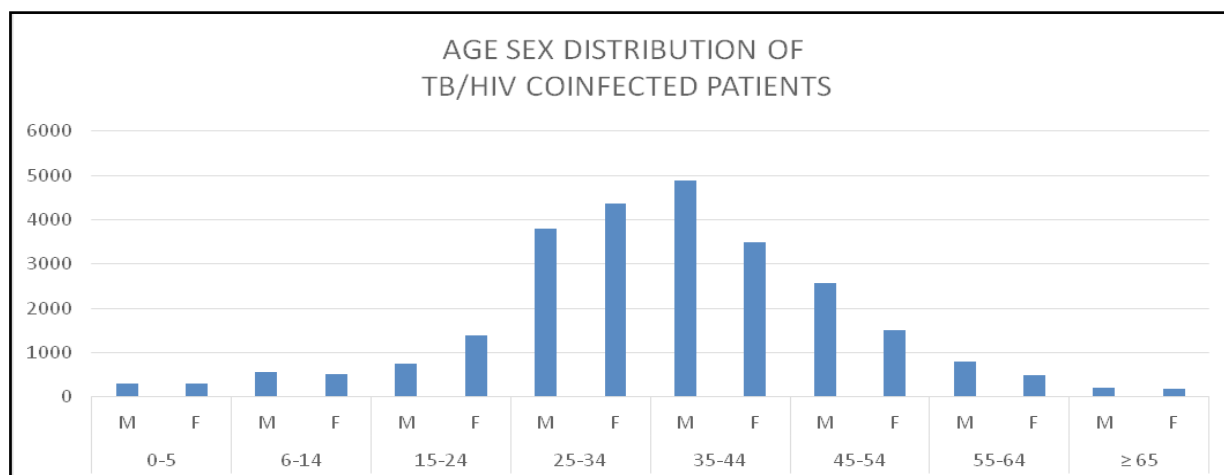


3.1.2. TB/HIV Co-infection

In 2015, approximately 25,030 (31%) of the 81,518 persons who developed TB in Kenya were HIV positive. There has been a gradual decline in the TB/HIV co-infection rate among notified TB cases from 45% in 2008 to 33% in 2015. Though higher than the 12% global TB/HIV co-infection rate, it is lower than 39% in the African region. Counties that had less than 10% TB/HIV co-infection were Marsabit, Garissa, Wajir and Mandera. Counties with a TB/HIV co-infection higher than 50% were Homabay, Siaya, Kisumu and Migori.

The majority of the TB/HIV co-infected cases were in the productive age group of 25 to 54 years with males more affected than females as shown Figure 11 below.

Figure 11: Age sex distribution of TB/HIV co-infected cases (2015)



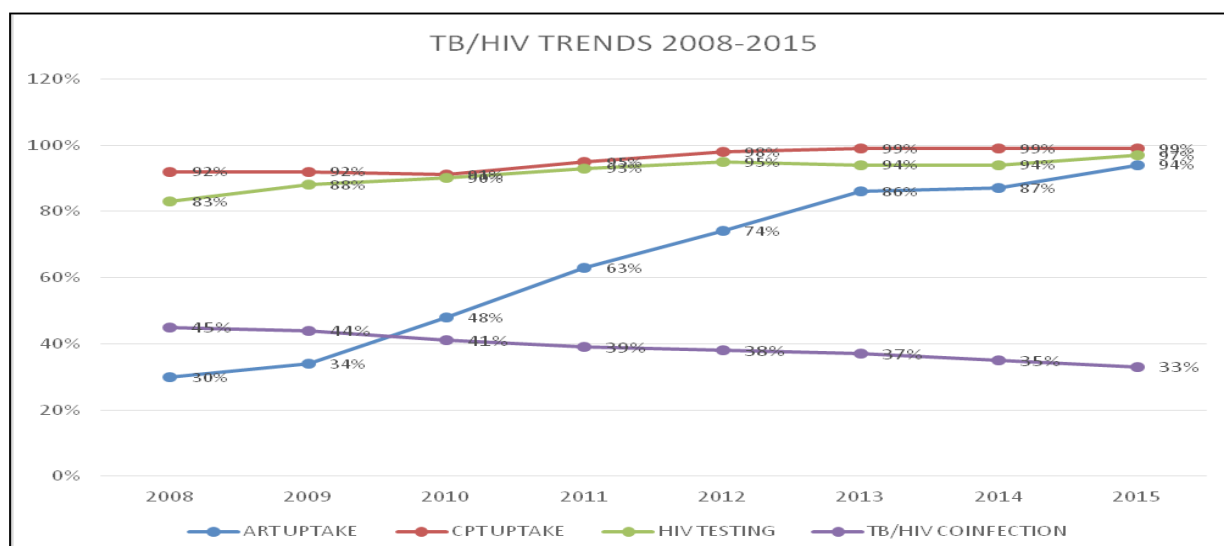
3.1.3. Cotrimoxazole Uptake

Cotrimoxazole uptake among TB/HIV co-infected patients was 99% as compared to 98% in 2014, which according to the 2015 Global Tuberculosis Report, is above the global and African cotrimoxazole uptake of 87% and 89% respectively. Almost all counties were able to achieve a CPT uptake above 99% with the exception of Garissa, Bomet, Kwale, Lamu, Taita Taveta and Tana River.

3.1.4. ART Uptake

Uptake of ART in TB/HIV co-infected patients is nearly universal and has greatly improved from 87% in 2014 to 94% in 2015. According to the 2015 Global Tuberculosis Report, this is higher than the 77% global and African ART uptake. Most counties (see figure below) were able to achieve an ART uptake greater than 90% with the exception of Garissa, Bomet, Nyeri and Taita Taveta.

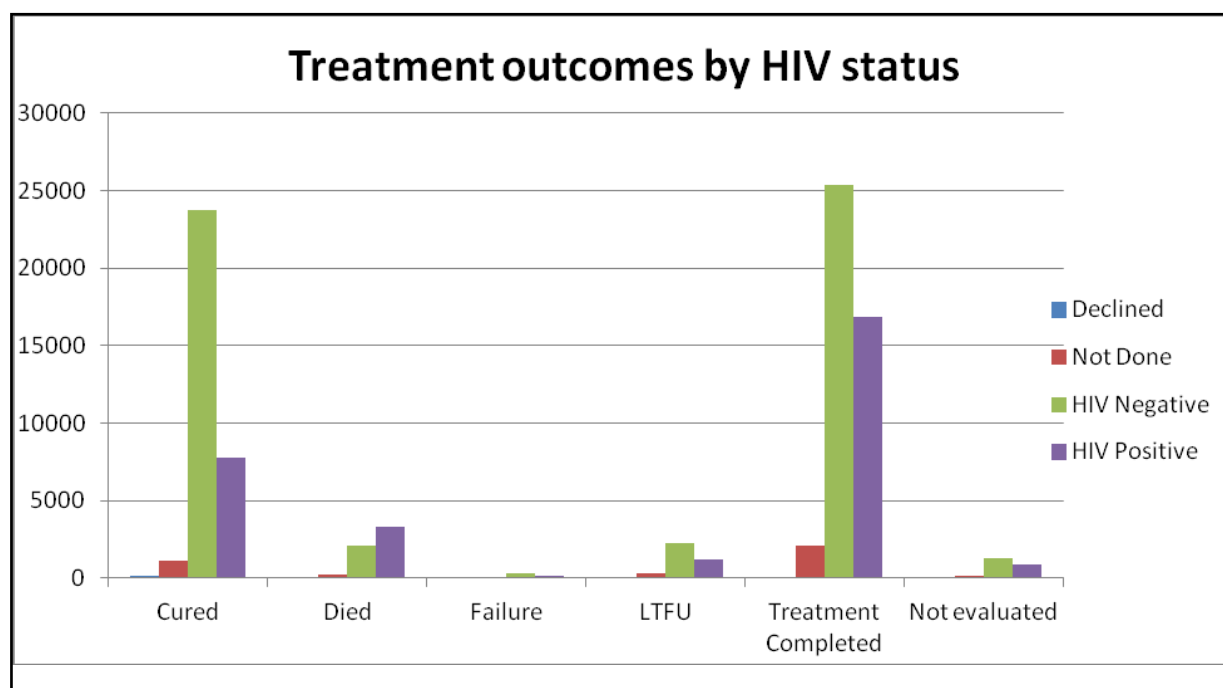
Figure 12: Trends for key TB/HIV indicators (2008 - 2015)



3.2. Treatment Outcome for TB/HIV Cohort Report 2014

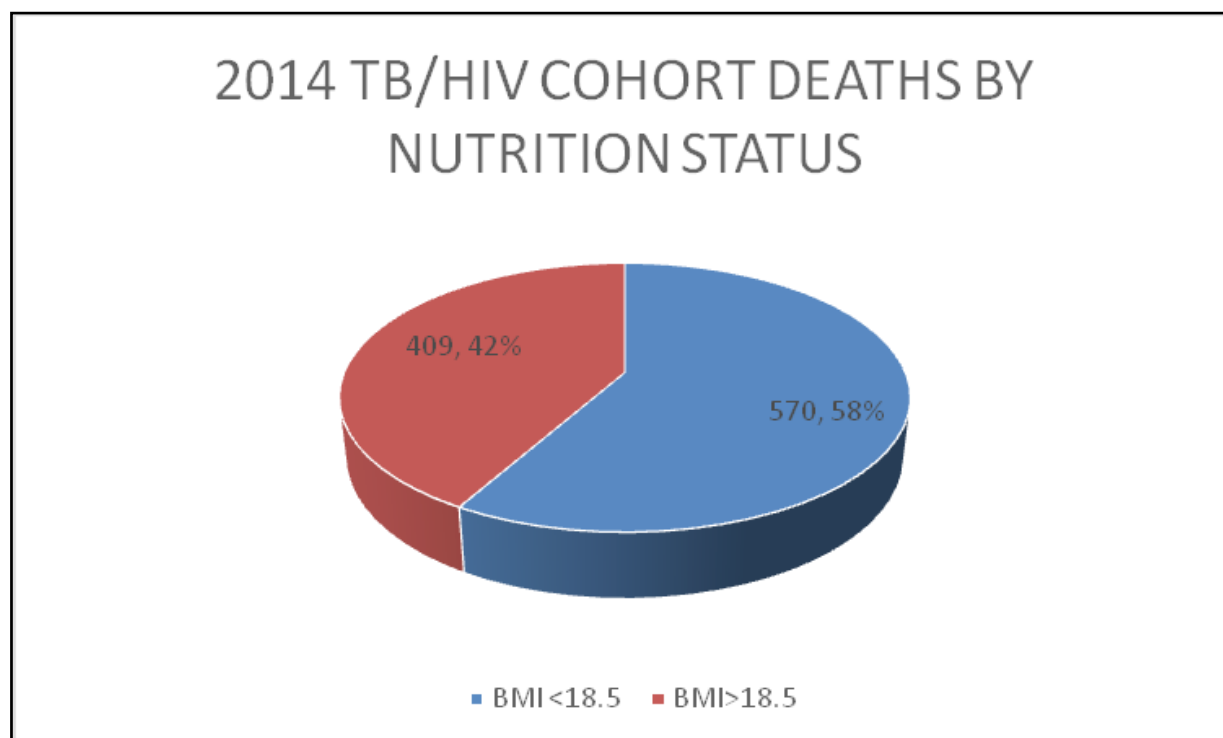
Treatment success rates for TB/HIV co-infected patients have improved from 74% in 2012, 76% in 2013 and 81.5 % in 2014. Treatment outcomes are generally better for HIV negative patients compared to persons living with HIV (PLHIV). Case fatality among notified TB/HIV co-infected patients however increased from 10% in 2013 to 11% in 2014, with more HIV positive patients dying than those who were HIV negative.

Figure 13: Treatment outcomes by HIV status of TB patients (2015)



Of the TB/HIV co-infected patients deaths, 60% had a BMI of less than 18.5 and only 34% of them were receiving nutritional support (N=3,305) See Figure 14 below.

Figure 14: Mortality based on nutrition status of TB/HIV co-infected patients



3.3. Isoniazid Preventive Therapy for PLHIV

Isoniazid Preventive Therapy (IPT) was officially launched on March 24th 2015 for PLHIV targeting five high burden HIV counties and later rolled out to the whole country with a target of enrolling 90% (919,391) of PLHIV (839,797 adults and 79,594 children) on IPT by December 2016. Of these, 29,924 (3.6%) adults and 7,934 (10%) children were initiated on IPT in 2015.

3.3.1 Isoniazid Preventive Therapy for Smear Positive Contact Children Below Five Years

There were 2,584 smear positive contacts below the age of five years who received IPT in 2015. Counties that initiated less than 10 smear positive contacts below the age of five years on IPT included Garissa, Samburu, Wajir, Bomet, Baringo, Pokot, Marsabit and Nyandarua. Murang'a and Meru counties had the most smear positive contacts initiated on IPT.

Figure 15: Patients initiated on IPT (2014 – 2015)

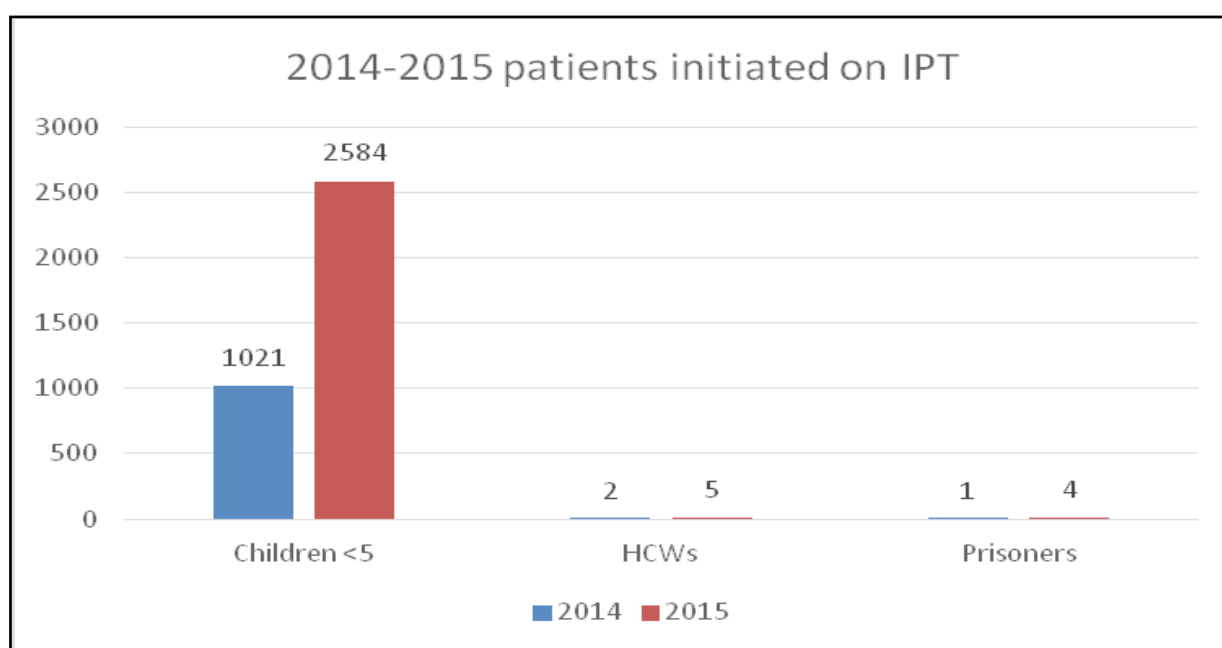
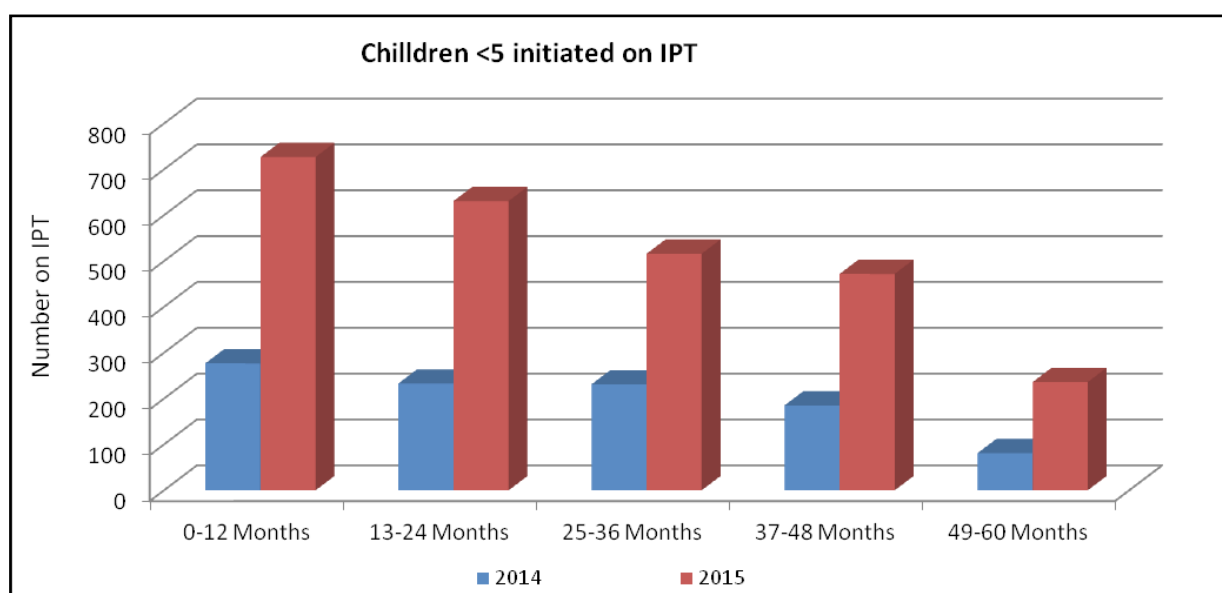


Figure 16: Children under five years initiated on IPT



4. DRUG RESISTANT TB

Drug resistant TB is a major public health concern and poses a threat to global TB control. In Kenya, case finding strategies are in accordance with WHO recommendations, including DR-TB surveillance among populations most at risk: previously treated cases, DR TB contacts, symptomatic health care workers, refugees and prisoners, and patients who are smear positive at month two of treatment.

4.1. Drug Resistant TB Case Notification

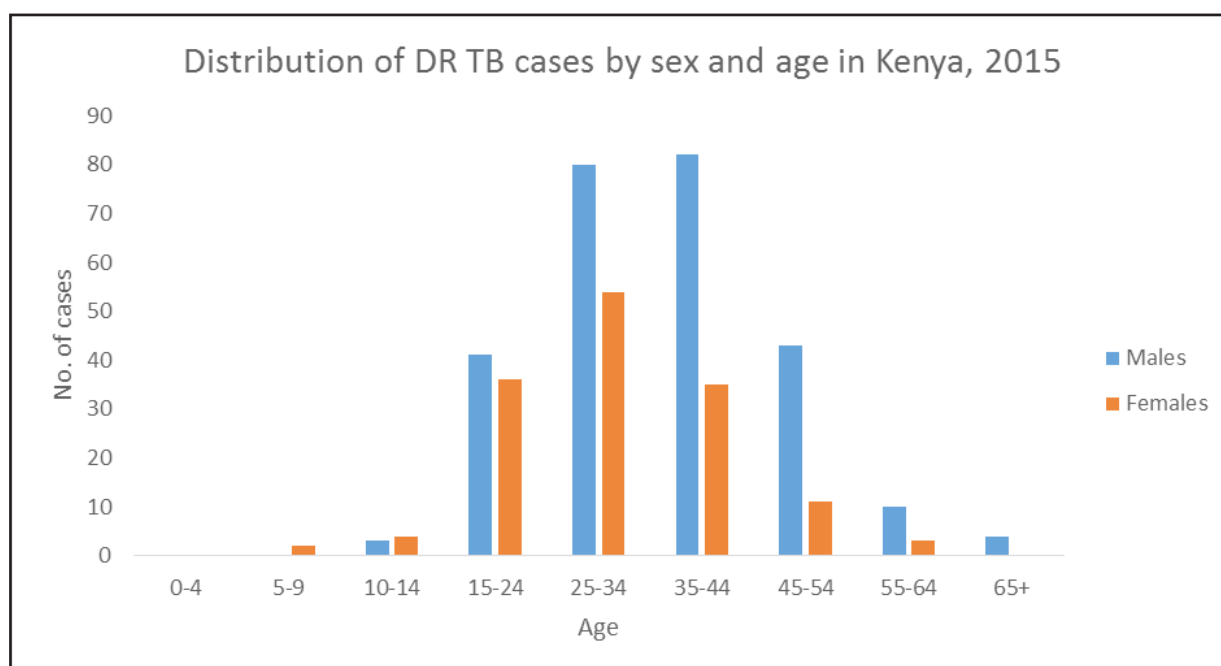
Over the years, despite the decline in case finding for drug sensitive TB, Kenya has seen a gradual increase in DR TB case notification from 112 cases in 2010 to 433 in 2015, with a 50% increase compared to 288 cases in 2014. Of the total in 2015, 368 were Rifampicin Resistant (RR/MDR TB). In 2015, the total number of treatment sites was 150 in 2015. There was also a large number of patients diagnosed in Somalia who crossed the border and enrolled for treatment in Kenya. About 15% of the drug resistant TB patients in Kenya are refugees. Kenya diagnosed one XDR TB patient in 2015 and was initiated on treatment in good time.

Table 2: RR/MDR TB cases

	Resistance to R but not H		Resistance to R and H		Total
	Pulmonary	EP	Pulmonary	EP	
New	119	1	53	2	175
Previously treated	60	1	131	1	193
Total	179	2	184	3	368

There were ten children (aged between nine and 15 years) diagnosed with DR TB (Figure 17) and initiated on treatment with males being more affected than females at a ratio of 2:1. The HIV testing rate among DR TB patients was 99% with 41% of them being co-infected. Among the co-infected, 95% are on ART and 100% on Cotrimoxazole (CTX).

Figure 17: Distribution of DR TB cases by sex and age (2015)



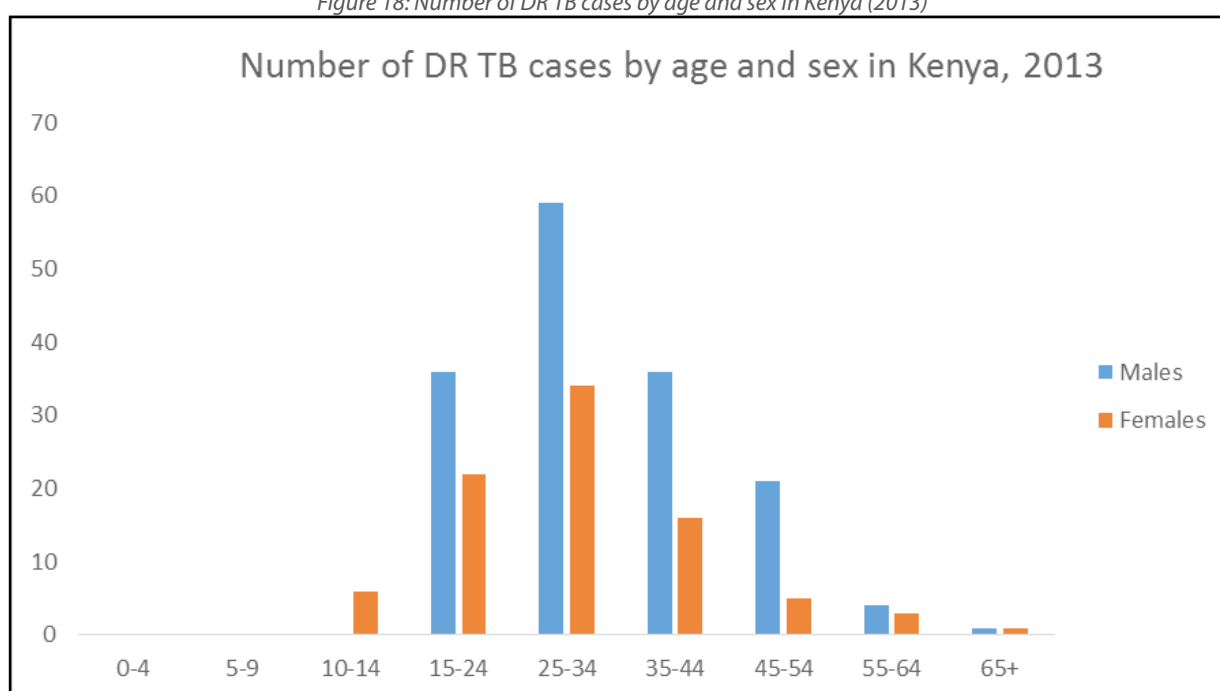
Factors that may have contributed to this rise include phased implementation and roll out of GeneXpert from 11 machines in 2012 to 126 machines in 2015, improvement in sample transport and networking, the ongoing sensitization of health care workers on the GeneXpert algorithm and capacity of the National Tuberculosis Reference Laboratory (NTRL) to perform Drug Susceptibility Testing (DST) and first line Probe Assay (LPA). The NTLD-Program and NTRL have made concerted efforts to channel the necessary resources to build the capacity of the reference laboratory to perform second line LPA.

4.2. Treatment Outcomes for 2013 Cohort

The total number of DRTB patients diagnosed and notified in 2013 was 298 with 266 RR TB patients and one XDR TB patient and the rest mono- and poly-drug resistant cases. Pediatric cases among children under the age of 15 accounted for 2% of all DRTB cases (Figure 18). Of the DRTB patients enrolled for treatment, 70% were managed in the public sector, whereas 29% were managed through the private sector. The rest were managed through Faith-Based facilities and prisons. The community-based model of care accounted for 44% of DR TB patients enrolled. Immigrants/refugees accounted for 24% of all DR TB patients enrolled for treatment in 2013. The HIV testing rate was 100% resulting in a positivity rate of 26%. CPT and ART uptake in the cohort was 100% and 97% respectively. The average BMI for DR TB patients was 17.6 of which 27% were severely malnourished (BMI <16.0) and 65% moderately malnourished (BMI 16.0-18.5).

The overall TSR was 81% of RR/MDR TB cases diagnosed in 2013 with a mortality rate of 10% and 7% lost to follow up. The TSR for HIV positive and HIV negative DR TB patients was 71% and 82% respectively. The TSR for children was 100%.

Figure 18: Number of DR TB cases by age and sex in Kenya (2013)



4.3. Streptomycin-Based Regimen Phase Out

Due to the high levels of association between ototoxicity and availability of molecular drug testing, Kenya phased out the use of the Category II streptomycin-based regimen used in the management of previously treated cases.

Patients diagnosed with TB will either be initiated on first line or second line treatment for drug sensitive or drug resistant TB respectively.

4.4. Introduction of New Molecules –Bedaquiline and Delaminid

An increase in the proportion of DR TB cases including XDR TB, both globally and locally, has informed the need for new medications. The invention of Bedaquiline as the first anti-TB drug plays a crucial role in strengthening a regimen when DR TB patients have strains that are either resistant to fluoroquinolones or second line injectable drugs or both. Bedaquiline is still under clinical phase III trial having been approved by the US Government Food and Drug Administration (FDA) for programmatic purposes under compassionate use.

Kenya introduced the use of Bedaquiline in 2014 with patients getting in the same year a pre XDR TB and one XDR TB. In 2015, another patient was initiated on a Bedaquiline based regimen for the management of XDR TB. The NTLD-Program is charting the framework and implementation plan to guide the introduction of Delaminid and its use and has been making good progress towards achieving favorable outcomes.

4.5. Centers of Excellence

The establishment of Centers of Excellence in the Kenya seeks to provide expertise to deliver the best clinical practices and care that can be emulated within the region. In addition, these centers will offer leadership, training and research opportunities. The PMDT technical working group developed a document that would guide the facilities in setting up centers of excellence.

4.6. Assessment of DR TB surveillance and Quality of Care

In 2015, the NTLD-Program in collaboration with the US Centers for Diseases Control and Prevention (CDC) conducted an assessment of the DR TB surveillance system and the Quality of Care offered to DR TB patients in Kenya with the aim of informing and improving DR TB treatment and care practices. The assessment evaluated care received by the patients compared to what was recommended by the programmatic management of drug resistant TB (PMDT) guidelines with particular focus on monitoring of severe adverse drug reactions.

The assessment reported that the use of GeneXpert and electronic reporting of cases through TIBU has improved the efficiency of DR TB surveillance. There were however some glaring gaps in documentation on the various data collection tools and hence difficult to assess the exact care that the patients received.

4.7. GeneXpert Expansion and Use

The Government of Kenya has increased the number of GeneXpert machines in the country from 71 to 126. Out of 74,935 tests done from DR TB high risk groups: children, HIV positive and smear negative cases, 266 were Rifampicin resistant patients including nine children (3.4%) and 43 co-infected (16%).

4.8. Adoption of New WHO Definitions

Following revision of definitions and reporting mechanisms by WHO, Kenya immediately adopted the new definitions. Robust sensitization of health care workers and coordinators was conducted and reporting tools revised to match the new definitions. The NTLD-Program conducted sensitization and training to over 150 health care workers on DR TB care and management.

4.9. Patient Social Support

All DR TB patients continue to receive KES 6,000 (approx. US\$ 75) per month to meet their transport costs to health facilities during the duration of treatment. In community-based model of care, the DOT Nurses receive KES 6000 per month to cater for their transport to the homes of the patients.

4.10. DR TB Patients at Daadab Refugee Camp

The process to handover the management and care of DR TB patients in refugee camps from IOM to Red Cross began in 2015. Amref Health Africa has also employed two Clinicians and three Nurses to assist in providing clinical support for the management of DR TB. They will provide technical and clinical expertise in collaboration with the NTLD-Program.

4.11. Audiometers

The Government of Kenya procured 42 audiometer machines for screening hearing impairment among patients receiving DR TB treatment. The machines will be distributed across the country. This will go in a long way in improving the quality of care among patients on second-line treatment.

5. NUTRITION SITUATION

According to 2015 TIBU data, 51% of newly diagnosed drug susceptible and 65% of drug resistant TB patients are malnourished at the time of diagnosis. Although Kenya has made tremendous improvement in achieving WHO targets for the period 2014 to 2015 for children below the age of five years, in curative areas and particularly TB, little or no improvement has been noted.

The NTLD-Program has recorded high proportions of severely wasted patients, at 18% of drug susceptible and 27% among drug resistant TB patients, which is a serious concern as most of these patients ended up with undesirable treatment outcomes. The nutrition situation also varies between counties with cities, with arid and

semi arid areas having higher proportions of malnutrition. The burden of malnutrition on TB patients requires concerted efforts to avoid loss of lives and productivity. The National TB, Leprosy and Lung Disease Strategic Plan recognizes good nutrition as an essential element promoting health and quality of life of patients. Nutrition has also been recognized in the Constitution of Kenya 2010 under the Bill of Rights 43 1(a, c, e) 2 and 53 1(c) where health, food, social protection and nutrition are basic rights. In respect to this, all patients requiring nutrition interventions are provided for as will be demonstrated in this report.

Figure 19: Nutrition Status (2015)

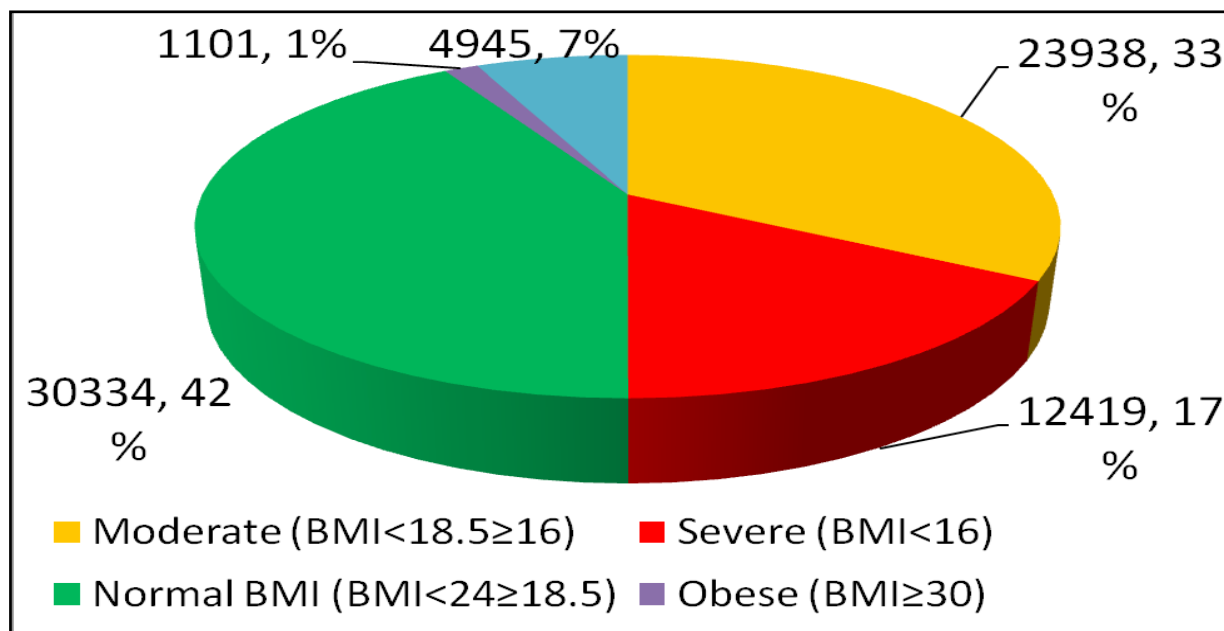


Figure 20: MDR TB Nutrition Status (2015)

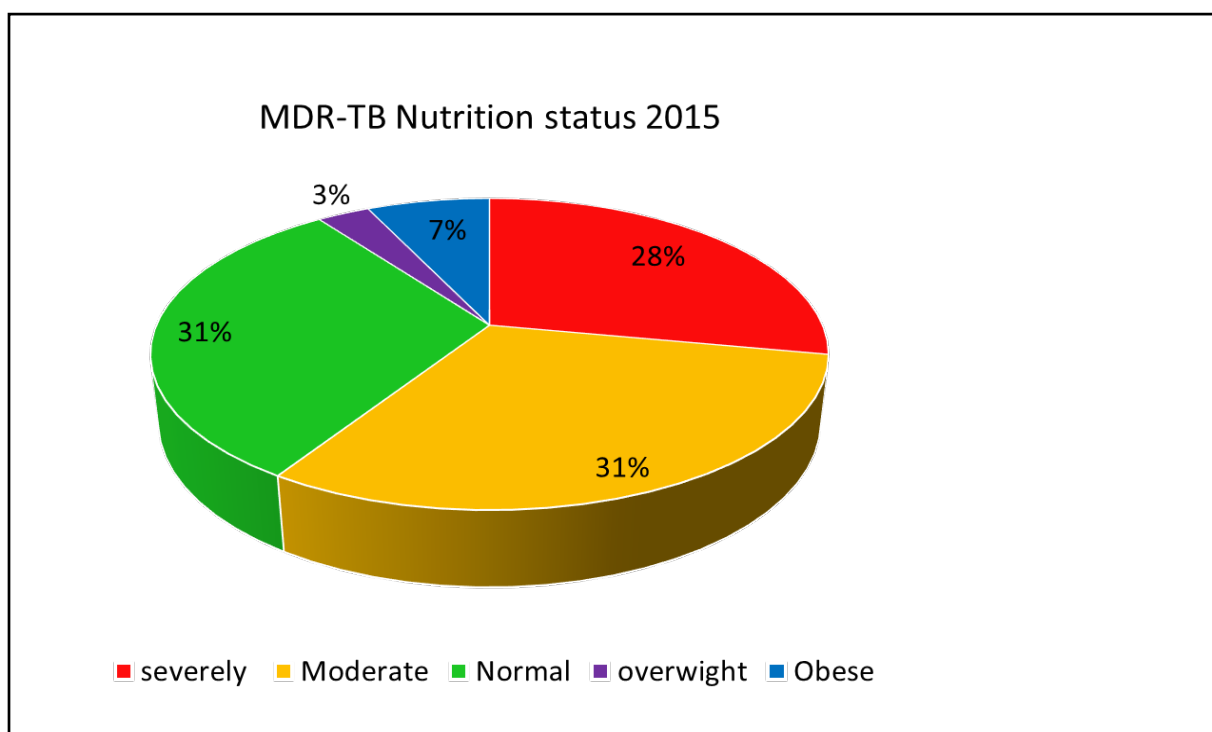


Table 3: Capacity building on nutrition and equipment placement

ACTIVITY	OUTCOME
Distribution of weighing scales	299 distributed
Distribution of MUAC tapes	11,000
Number of Micro-toise received	105
Health workers training	286 trained

Figure 21: Patient therapeutic support per quarter (2015)

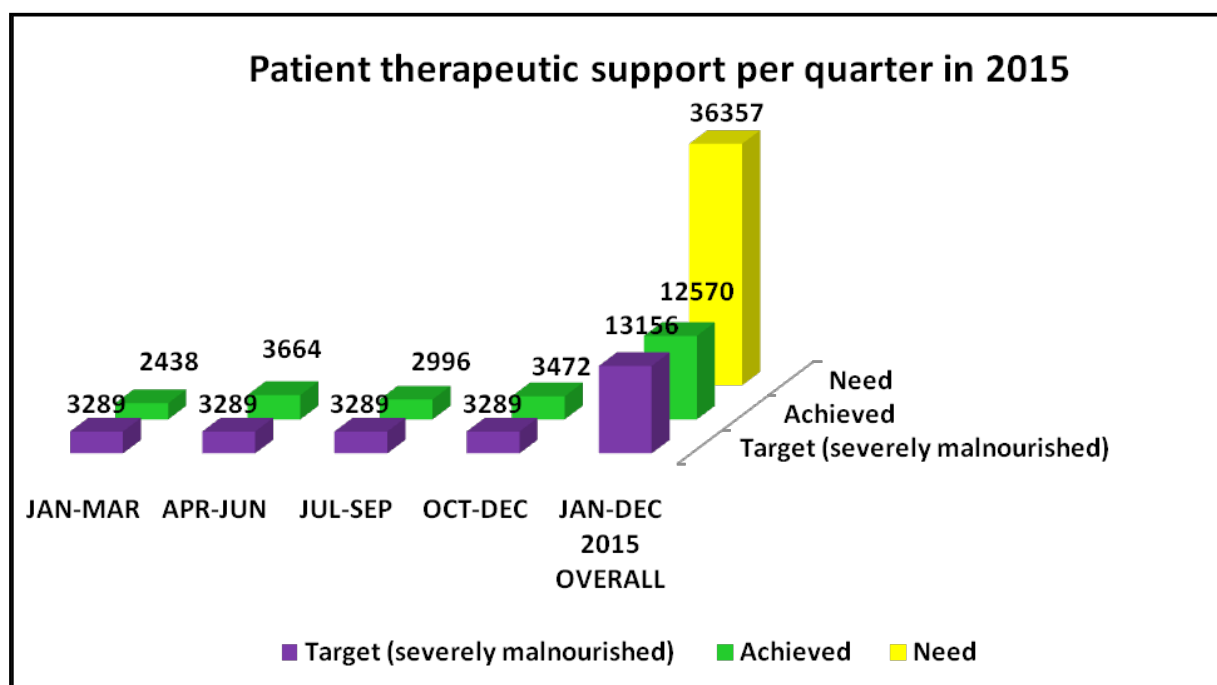
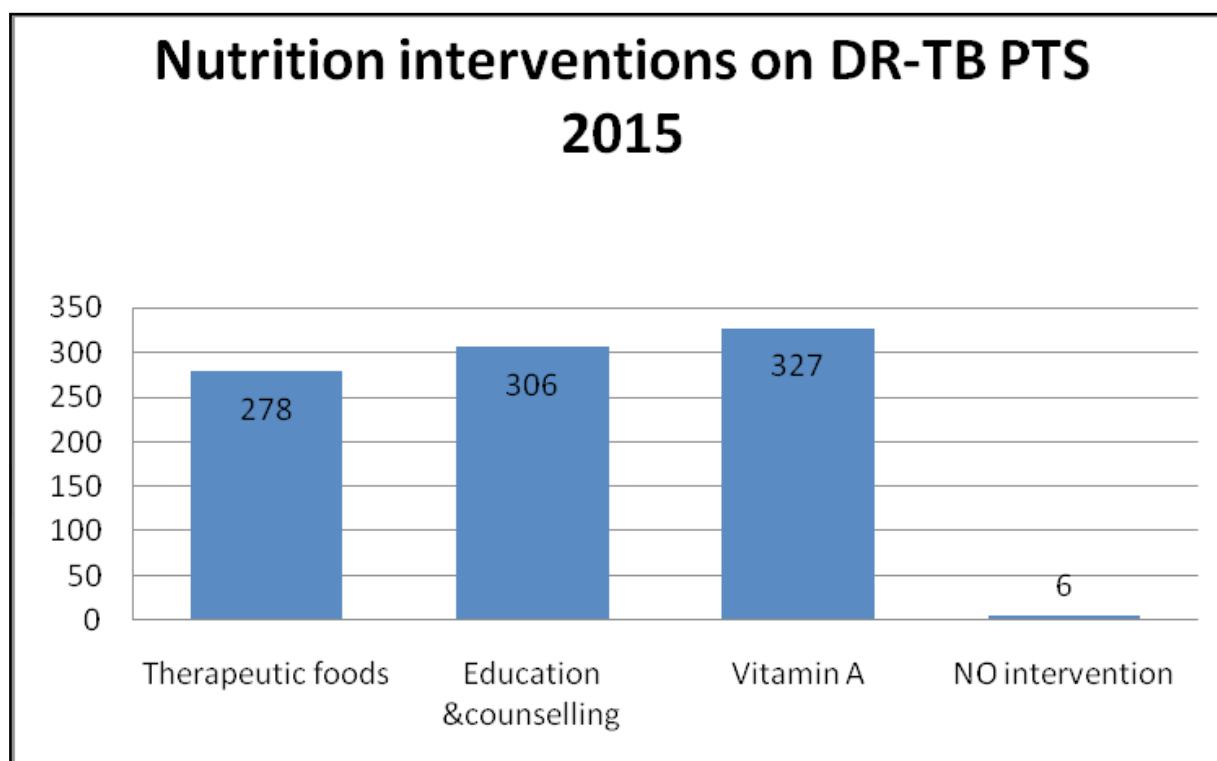


Figure 22: Nutrition interventions on DR TB patients (2015)



6. LEPROSY

In 2015, 124 cases of Leprosy were notified from a total of 22 counties, of which 67% were among the male population. Of the cases notified, two were children between the ages of one and 14 years.

Leprosy in children is an indicator of continuous community transmission and warrants intensive case finding and treatment. The children were from Kisumu and Taita Taveta counties. There have been concerted efforts to enhance HCW skills in diagnosing Leprosy. A training curriculum is in place and HCW trainings will be conducted in 2016 especially in high endemic areas. Resource mobilization for post elimination strategies for Leprosy is also on going.

7. LUNG HEALTH AND PAL

Asthma is one of the most common non-communicable diseases in Kenya. Treatment of Asthma has been going on in many health facilities, however, routine collection of asthma data is yet to begin.

Several health facilities have incorporated Asthma services into the TB services while others still have a stand-alone Asthma Clinic. All efforts will be made to ensure that HCWs are trained in Asthma and other chronic obstructive lung diseases, and are supported to implement the lessons learnt. Implementation of the Practical Approach to Lung Health (PAL) will assist in tracing missed TB cases, reducing unnecessary prescriptions, especially of antibiotics, and thus minimizing antibiotic resistance and saving on costs.

In 2015, 33 health facilities were equipped with spirometers and peak flow meters to enable them diagnose and manage patients with Asthma. In the coming year, all the remaining facilities will be equipped to ensure that at least all county hospitals are able to adequately run Asthma Clinics. Data collection and reporting for Asthma will be enhanced and information updates included in subsequent phases of the electronic data system TIBU.

8. SOCIAL PROTECTION AND SUPPORT

Household members who are ill cannot effectively contribute to household income or labor. TB patients on treatment, and more so from informal settlements and those with drug resistant TB, often require care and support from other members of the community as they incur medical expenses that further deplete incomes.

TB and HIV/AIDS impacts on a household's economic potential and retards the social economic development of the community, jeopardizing community advancement.

9. COMMODITY AND LOGISTICS

Responsible for coordinating supply chain management of the NTLD-Program's commodities to provide uninterrupted supply of medicines as well as laboratory commodities and other commodities to all treatment health facilities in the country, the Commodity and Logistics section hosts two Pharmacists, one Pharmaceutical Technologist, a Store Manager, Procurement Officer and one Records Officer.

KEY ACTIVITIES

9.1 Planning for Implementation of Counterpart Financing Related Activities

The NTLD-Program received KES 300m for the financial year 2016-2017 for the procurement of commodities. The exercise started in June 2015 and was concluded in December 2015. Kenya Medical Supplies Agency (KEMSA) was tasked to coordinate the procurement, warehousing and distribution of the commodities.

9.2 Commodity Security Sub-Committee

The section continued to meet and evaluate the status of commodities in the country. Monthly commodity meetings were used to review the NTLD-Program's commodity status, which is shared with the Government, Global Fund and partners in the form of a dashboard for planning and decision-making.

9.3 NTLD-Program Forecasting, Quantification and Procurement Plans

A Forecasting and Quantification exercise was conducted to ensure commodity security in the country. This exercise involved the use of appropriate software, Quan TB, in quantification of the NTLD-Program's requirements (2015 - 2017) for medicines and laboratory commodities.

9.4 Quality Assurance for TB Medicines

Post Market Survey

The NTLD-Program carried out Joint Post Market Surveillance in collaboration with the Pharmacy and Poisons Board, Department of Pharmacy at the Ministry of Health, NASCOP and the Malaria Control Program. Sampling has been carried out and submitted to the National Quality Control Laboratory for analysis and report writing. The report is expected to be available for dissemination by the end of 2016.

9.5 Joint Activities between NTLD-Program, NASCOP, Malaria and RH Programs

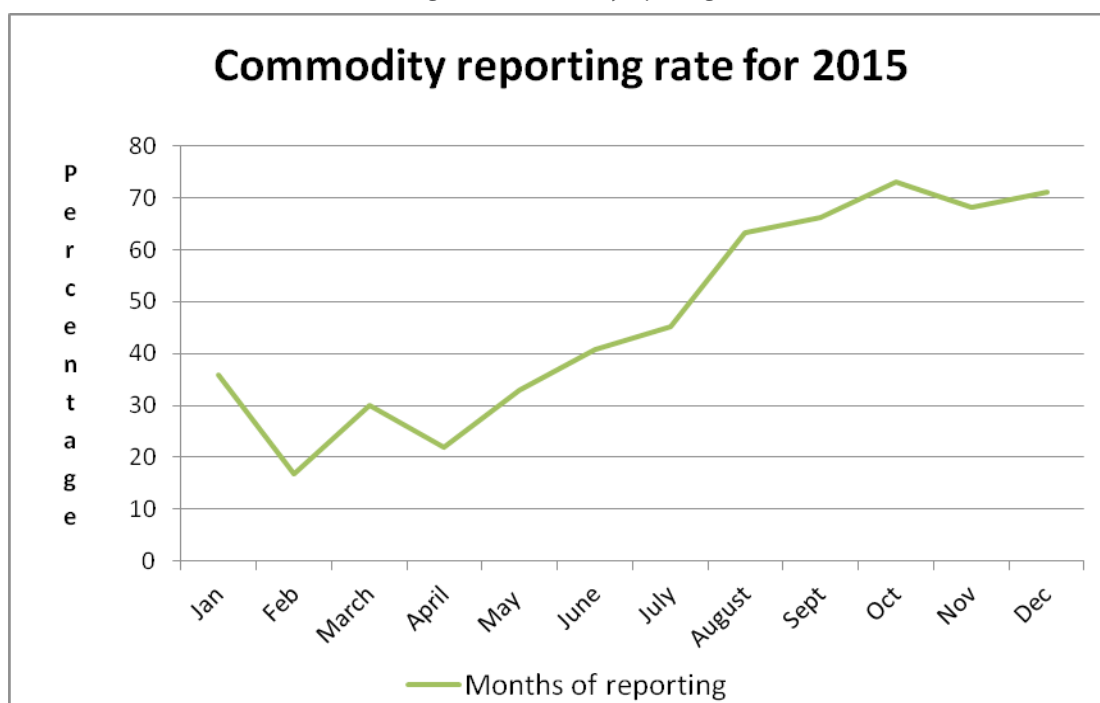
Strengthening of HSS, Pharmacovigilance and capacity building on LMIS has been supported through support from the Global Fund New Funding Model. The NTLD-Program in collaboration with the three disease programs: NASCOP, Malaria and Reproductive Health developed joint activities for the Health Sector Strengthening (HSS) intervention in the country. Some of these activities have been started while others are planned to commence in 2016. The activities include:

- a) Renovation of 47 county and 290 sub county drug stores
- b) Renovation of 15 laboratories
- c) Training on forecasting and quantification
- d) Monthly commodity security meetings
- e) Redistribution of medicines and other program commodities at county level
- f) County supportive supervision
- g) Post market surveillance
- h) Pharmacovigilance training
- i) DHIS-LMIS integration

9.6 Commodity Reporting

There has been an upward trend in the country reporting rates for the year 2015 (from 33% in March to around 71% in December). Partners' support on commodity management and involvement of both County Pharmacists and Sub county Pharmacists has played a major role in improving reporting rates.

Figure 23: Commodity reporting rate (2015)



Despite the milestones achieved in commodity management, there are areas that will need improvement. Reporting of commodities by sub-counties remains a major concern with many reporting sites either submitting their resupply requests late, poor quality reports or incorrect requests making it difficult to ensure the timely distribution of medicines and other commodities. Low reporting rates (of less than 70%) in some counties have led to challenges in Quantification and Forecasting of commodities. Delay in distribution of TB/Leprosy commodities and servicing of orders by KEMSA also needs to be improved. There is need to streamline the identification, management and reporting of ADRs to improve quality of care.

10. DIAGNOSIS AND LABORATORY SERVICES

10.1. TB Microscopy Services

In 2015, microscopy diagnostic sites increased from 1,920 to 2,172, a moderate increase from the previous year, the majority of these (651/2,172) were in public facilities. Sputum smear microscopy is still used in most microscopy laboratories for TB diagnosis. The NTLD-Program introduced LED Fluorescent microscopy in 600 high volume laboratories. Coverage per population has gone down to one lab to 24,000 compared to 100,000 as recommended by WHO which includes county hospital laboratories and busy sub county hospital laboratories. The NTLD-Program is keen on improving the quality of services in the current laboratories rather than decentralizing further.

Figure 24: Increase in TB microscopy services (2007 - 2015)

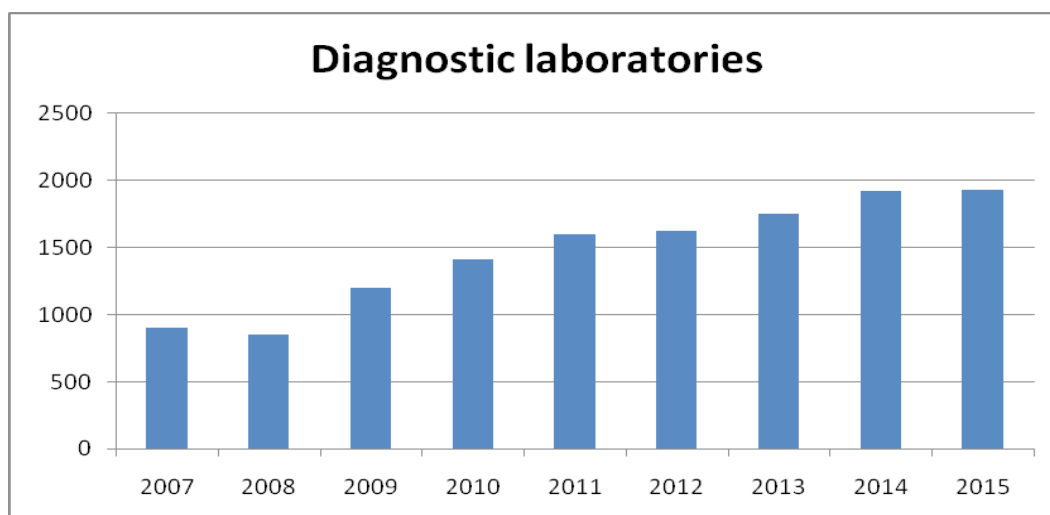


Table 4: Laboratory Workload 2015

Year	Workload						
	Diagnosis			Follow up			Total
	Pos.	Actual no.	Neg.	Pos.	Actual no.	Neg.	Total
2012	80,518	7,953	673,825	8,650	3,083	106,947	880,976
2013	65,846	5,984	556,905	6,841	2,187	79,883	717,616
2014	52,554	4,070	462,194	4,552	1,566	60,210	585,146
2015	28,923	5,916	481,420	5,646	5,646	79,216	606,767

10.2. External Quality Assurance (EQA)

During the year under review both GFATM and CHS (TB ARC) continued to support EQA activities in all counties in terms of per diems, lunches and transport for SCMLTs and CMLTs to enable them give EQA feedback to

diagnostic centers. Through the support of JICA, each CMLT went through refresher training to understand the role of EQA and AFB microscopy in both light and fluorescent. Eighty five percent (85%) of the laboratories have been enrolled to participate in the EQA program. Sampling of slides by the CTLCs and SCTLCS has greatly improved.

Main Findings

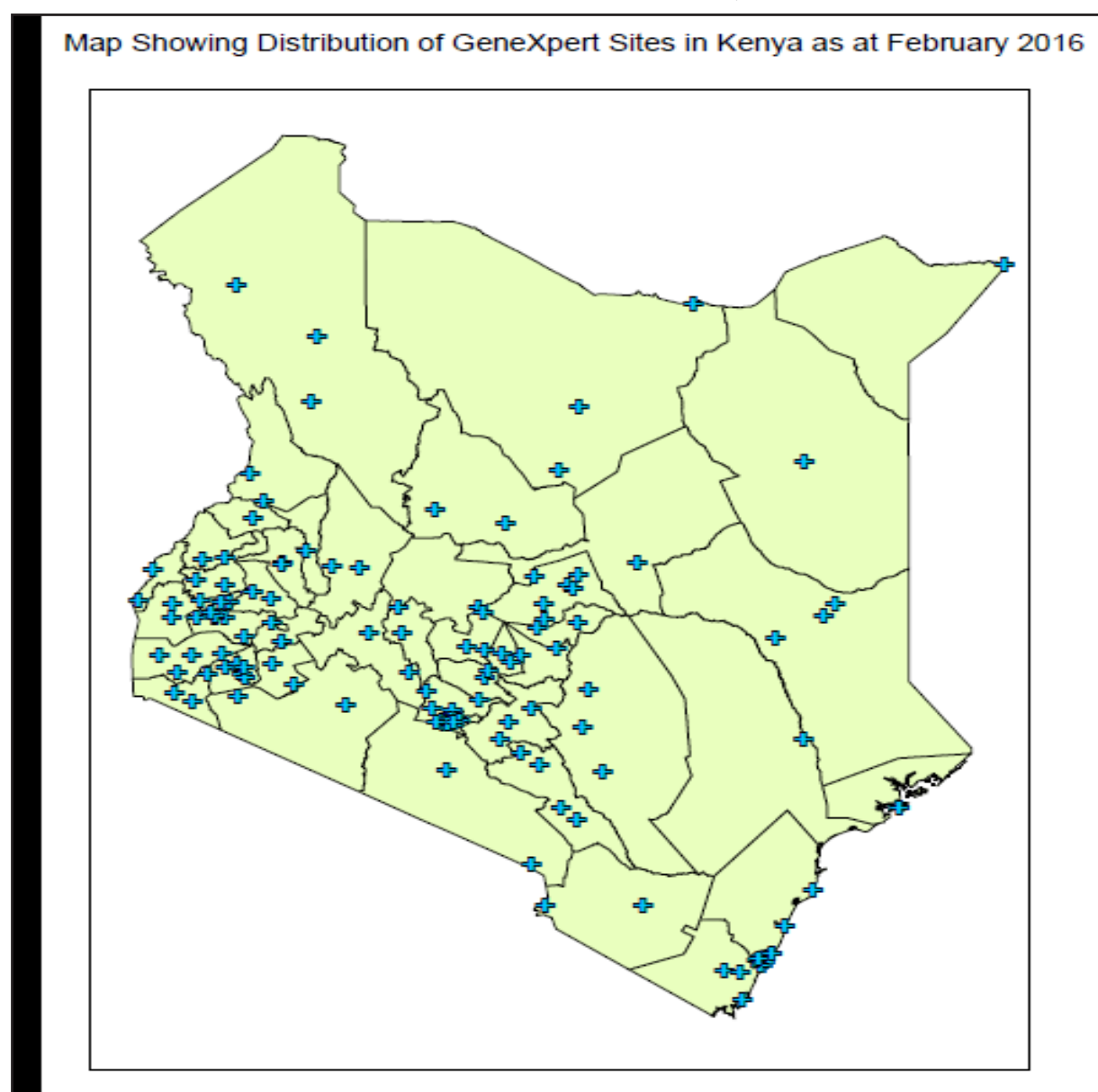
There was no significant improvement in quarterly EQA coverage. The error rate has remained below 5% and there is a consistent downward trend of all errors with an overall rate of less than 5%. The completeness and submission of EQA reports by SCMLTs and CMLTs is timely and EQA reimbursements have been up-to-date.

10.3. GeneXpert Testing

10.3.1. GeneXpert Implementation

In 2012, Kenya adopted the use of GeneXpert, a molecular based technique that greatly reduces the turnaround time for TB diagnosis and detection of Rifampicin resistance. By the end of 2015, there were 126 GeneXpert machines distributed across the country with 250 GeneXpert machines expected in phases by 2017 as per the GeneXpert Expansion plan shown in Table 5 below.

Figure 25: Distribution of GeneXpert machines in Kenya Feb 2016



10.3.1. GeneXpert Expansion Plan

The country plan to use a phased approach in the placement of GeneXpert machines to meet targets set is shown in table below.

Table 5: GeneXpert Expansion Plan

Year	2011	2012	2013	2014	2015	2016	2017
Targets		18	115	120	170	200	250
Actual	3	11 (61.1%)	24 (20.9%)	71 (59.2%)	126 (74.1%)	20 Expected	

Each of the 47 counties is anticipated have a super user to offer routine preventive maintenance services and handle some challenges in respective counties to avoid overreliance on the NTLD-Program.

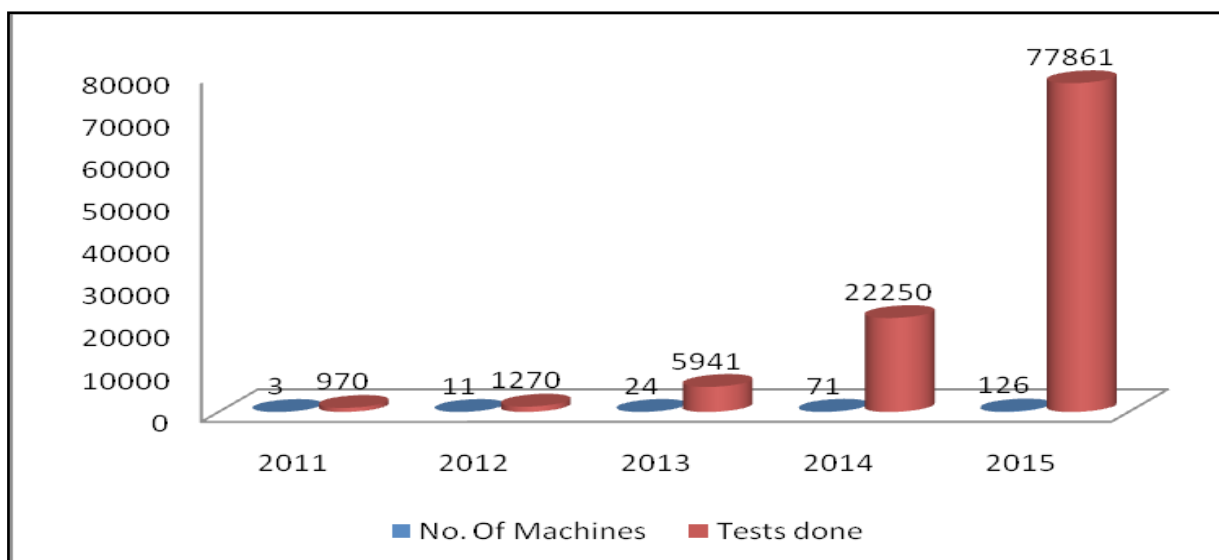
All machines are installed at facility level where laboratory and clinical staff are oriented on the new technology including available tools for use.



A complete GeneXpert unit fully installed and functional

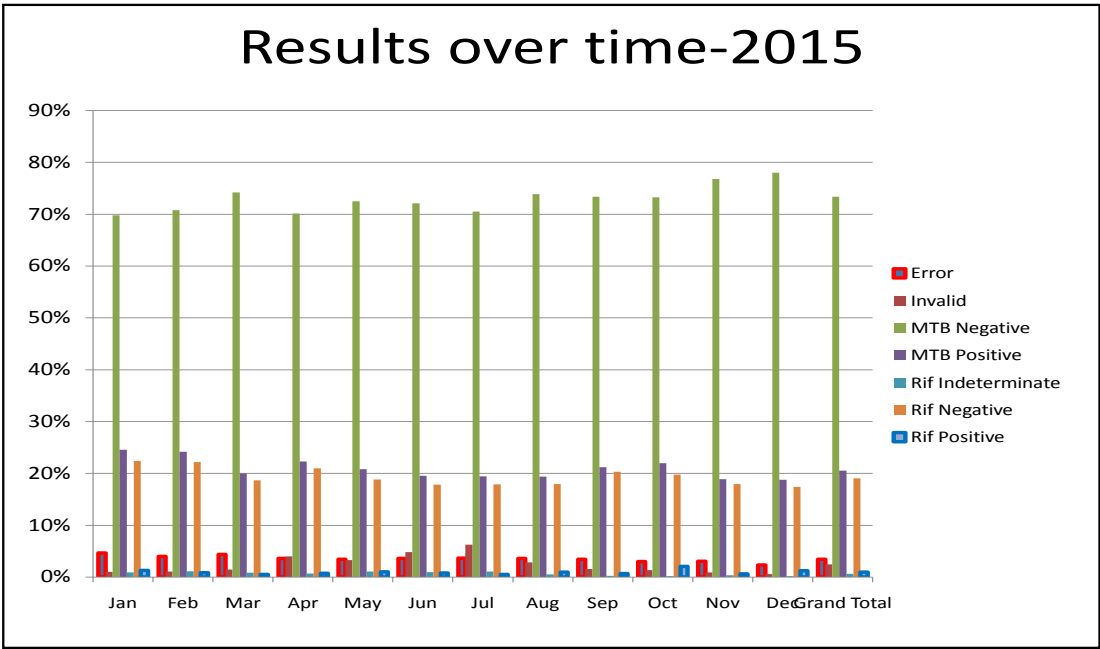
All GeneXpert machines are linked to a national web based reporting system - GXLIMS. This system supports online monitoring and reporting and commodity management. The testing rates have shown an upward trend, a key achievement as shown below:

Figure 26: Trends in GeneXpert utilization (2011 – 2015)



Quality performance evaluation for GeneXpert testing is mainly based on indicators as shown in the table below. One of the key performance indicators monitored on a weekly basis is the error rate. The error rate is at 3.6% for all the machines although most of the sites are in the range of 1% to 2%.

Figure 27: GeneXpert performance indicators



11. NATIONAL TUBERCULOSIS REFERENCE LABORATORY

The National Tuberculosis Reference Laboratory (NTRL) is part of the National Public Health Laboratory serving as the central reference point for TB culture and drug sensitivity activities in Kenya. NTRL works in collaboration with both public and private culture laboratories across the country such as IOM-Dadaab, Kisian-CDC, Walter Reed-Kericho, Nairobi Hospital, TB Lab-KEMRI Nairobi and Aga-Khan University Hospital. All these labs have been enrolled in the EQA program for both microscopy and GeneXpert from CDC Atlanta among other labs.

The NTRL performs smear microscopy using both FM and ZN for quality assurance, TB culture on liquid and solid medium, and both first line and second line drugs. The lab also carries out Line probe assays (LPA) for both 1st and 2nd line with version 2 (LPA Hain) and GeneXpert tests for evaluation. Being the main culture laboratory in the country, the NTRL plays a key role in patient monitoring during treatment. The patient's eligibility for culture and DST includes health care workers, prisoners, MDR TB contacts; all presumptive cases with Rifampicin resistant result on GeneXpert, previously treated cases, second line DST for all MDR TB patients on treatment and other DR TB cases.

The following samples were received in the main culture laboratories for culture and DST in 2015.

Table 6: Number of Samples received in culture laboratories

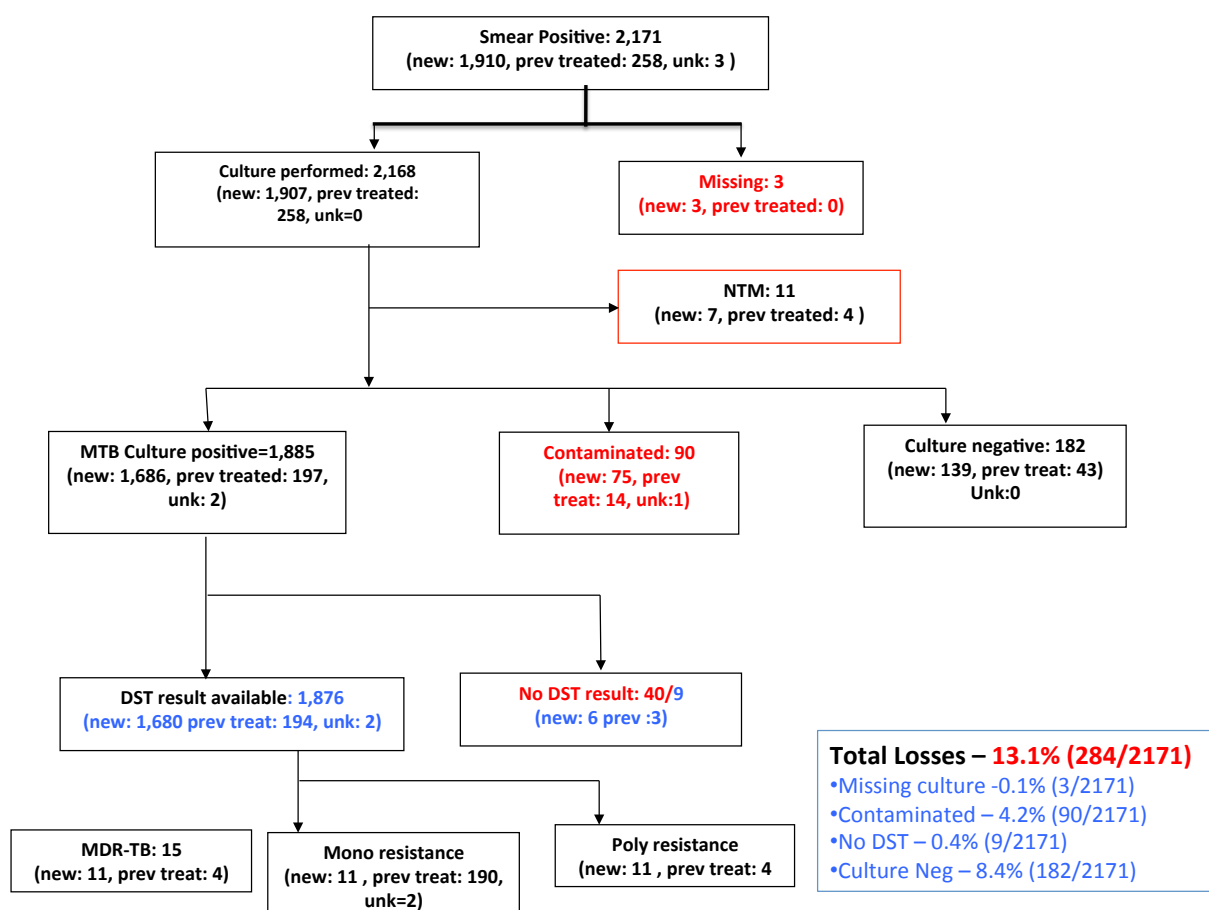
	Indicator	NTRL
	Total Samples	22,324
	LJ/MGIT Culture	18,412
1	DST Done	17,910
2	MDR	122
3	RR	290
4	LPA 1ST LINE	1,902
5	LPA 2ND LINE	22
6	MTB +(GeneXpert)	656
7	No MTB	74
9	MOTT	83



The National TB Reference Laboratory is the central reference point for TB culture and drug sensitivity activities in Kenya

Other Achievements for 2015

1. P3 laboratory was officially opened by the U.S Ambassador to Kenya in August 2015
2. Completed the Drug Resistant Survey. Below is a flow chart of the work covered till December 2015. The official report will be out in 2016.



3. Started the Prevalence survey and at the close of 2015, 5,877 samples had been received at the laboratory. Out of these samples 5,682 were subjected to GeneXpert testing and a total of 139 confirmed as TB cases as per the survey definition.
4. Four new bio safety cabinets were acquired and installed at the new P3 laboratory.

12. POLICY AND PLANNING

12.1 Development of the TB Integrated Curriculum

One of the mandates of the NTLD-Program is the development and review of policies that govern the control of TB, Leprosy and Lung Disease in Kenya. In 2015, the NTLD-Program initiated the process of integrating the TB, Leprosy and Lung Disease guidelines. The NTLD-Program currently has several guidelines for each disease and thematic area necessitating a user to refer to many books in search of information. The integration was therefore prompted by the need to provide easy access to information for the users and is expected to ease the access of information by users, as they would only have to refer to one book. In addition to integration, the guidelines will be reviewed to update them with new information thus aligning them to new WHO recommendations.

The development of an integrated training curriculum was also initiated. Health care workers who will undergo this integrated training will be knowledgeable on the management of the three diseases. This will also increase efficiency since health care workers will be required to undergo an integrated training as opposed to several segmented trainings.

The NTLD-Program also initiated the development of a policy document targeting high-level managers and decision makers. With the devolution of health services, there is need to increase advocacy to ensure that TB, Leprosy and lung diseases are managed appropriately and that countries allocate adequate resources by counties. The policy will therefore come in handy not only to the counties, but to all stakeholders as a guide for decision-making.

12.2 NTLD-Program National Strategic Plan Launch 2015-2018

The launch of the National Strategic Plan (NSP) for Tuberculosis, Leprosy and Lung Health 2015 – 2018 was held on March 19, 2015 in Nairobi. The plan focuses on interventions to be rolled out across the country in the implementation of TB, Leprosy and lung disease control.

Several distinguished guests among them the then Director of Medical Services, Dr Nicholas Muraguri, who was representing the Cabinet Secretary for Health, American Ambassador to Kenya H.E Mr Robert Godec and WHO Country Representative Dr Custodia Mandlhate, among others graced the event.

The strategic priorities for the NSP include:

- Identification and treatment all cases of TB, MDR-TB, Pediatric TB and Leprosy
- Engaging all care providers
- Promoting and strengthening community engagement
- Enhancing the multi-sectorial response to TB/HIV
- Accelerating appropriate diagnosis
- Ensuring stable and quality supply of all commodities
- Enhancing evidence-based programme monitoring and evaluation
- Creating an enabling, multi-sectorial environment
- Supporting devolution

12.3 Development of a TB Sustainability Framework and Investment Case

TB, Leprosy and Lung Disease activities in Kenya are largely donor funded. With the elevation of the country's status from a low income country to a low-middle income country, there is need to ensure sustainability of activities, with the knowledge that donor funding will decrease. In this regard, the NTLD-Program initiated the development of a sustainability framework in 2015. This framework is expected to facilitate the delivery of a strategic and sustainable response to TB.

A central element of the framework will be the development of an investment case, which will enable the country understand previous and current TB epidemiology and health system responses. Furthermore, it will facilitate the identification of innovative financing and service delivery options including the scope for integration and other means to maximize efficiency, lower costs, improve quality and identify means to enhance health system equity and inclusiveness. The investment case will be used to advocate for increased domestic funding for TB in the face of declining donor funding mainly targeting the government and private sector players.

12.4 Development of Annual Work plan/Joint Quarterly Work Plans

The NTLD-Program was involved in the development of an annual work plan drawn from all partners that included developing activities, costing and budgeting in an effort to gain efficiency. The implementation of these activities is closely monitored for progress. The NTLD-Program endeavors to work closely with its implementing partners and stakeholders providing resources for TB control as follows:

- Global Fund New Funding Model and PR Amref Health Africa
- USAID through the CHS led TB ARC activity
- CDC and MoH Cooperative Agreement (CoAg)
- WHO providing funding as well as technical expertise
- GoK through MoH providing offices and human resource

12.5 Global Fund Tuberculosis Grants

Kenya signed TB grants amounting to KES 6.6 billion for the fiscal year 2015/2016 and 2016/2017. Two Principal Recipients will manage the funds: The National Treasury for public sector and 33% to Amref Health Africa for non-state actors. The NTLD-Program is a Sub-Recipient (SR) for the National Treasury.

Under these grants, the country plans to reach marginalized, high-risk and under-served populations, and closing the case detection gap. The grant will procure and install the latest technology in TB diagnosis - GeneXpert molecular testing, and provide treatment and support for MDR TB patients. It will support the national rollout of IPT for PLHIV, prisoners and other key populations.

The grant from the non-state actors PR will support key national priority interventions. These include integrated community health services, active case finding for TB in targeted areas including informal settlements, prisons and marginalized areas and MDR TB patient support including provision of nutrition and transport to treatment facilities. Thirty-three (33) counties have been prioritized for TB community case finding and defaulter tracing interventions through the selected sub-recipients.

The USAID TB ARC grant of US\$ 40.5 Million supports NTLD-Program activities across all 47 counties to provide reliable leadership and coordination of TB services through coordination and planning, support supervision, STOP TB Partnership - Kenya, sustainability efforts and TB drug management. Other activities include the scale-up of new TB program areas i.e. new diagnosis technology, Pediatric TB, communication, adoption and scale-up of globally proven TB interventions (PPM, IPT, CPT), technology driven programming and monitoring through routine monitoring and evaluation (M&E) and the TIBU system.

13. PREVENTION, HEALTH PROMOTION AND COMMUNITY ENGAGEMENT

13.1 ADVOCACY

a) High level resource mobilization: Engaging elected leaders in TB advocacy

The NTLD-Program has been engaging the Stop TB Partnership - Kenya in advocacy for increased resources for TB control in line with the program's strategic plan. One of the strategies has been to engage Members of Parliament in advocacy for increased resource allocation.

The partnership mobilized MPs to increase their commitment towards Ending TB in Kenya and in the globe in line with the global strategy to end TB by 2030. In September 2015, the partnership brought together MPs including members of the Parliamentary Health Committee to deliberate on increasing political commitment to TB. During the forum, 11 Parliamentarians signed a communiqué committing to ensure adequate allocation to TB during the national budgeting process. They also committed to working with the Stop TB Partnership-Kenya and other stakeholders towards ending TB in Kenya.



MPs sign a communiqué committing to ensure adequate allocation of resources for TB during the national budgetary process

Led by Matungulu MP and Parliamentary Health Committee member Hon Stephen Mule, the 11 MPs included Hon. Agostinho Neto, Hon. Andrew Mwatate, Hon. Ndirie A M Abdulahi, Hon. James Bett, Hon. Joseph Magwanga, Hon. Shukra Gure, Hon. M.A Haffi, Hon. David Kariithi and Hon. Dr Murgor. Hon. Rachel Nyamai, chair of the Parliamentary committee on health was also present. The Parliamentarians further committed to use their leadership and influence to demand for more effective action to beat the TB epidemic in Kenya.

13.2 Developing High level TB Champions

The STOP TB Partnership - Kenya has identified and has been working closely with mentoring one of the MPs, a member of the Parliamentary Health Committee, and a passionate TB advocate. He is also a founding member of the Global TB Caucus and the convener of the African TB Caucus. In 2015, the MP mobilized over 130 Members of Parliament in Kenya to sign the Barcelona Declaration making Kenya the country with the highest number of signatories globally. At the same time, he worked with the speaker of the Kenya National Assembly to make a commitment towards TB control in Kenya. He spearheads advocacy for increased allocation to TB at national and county levels.

This engagement has led to Kenya being represented in high-level decision-making processes. These include the development of the Global Financing Framework for Global Fund in Ethiopia held in 2015.

13.3 South Africa Lung Health Conference

The Lung Conference is an annual event attended by researchers, medics, academicians, advocates and communities. Though political leaders are always invited, the conference had not realized meaningful participation from the political class. However in 2015, through advocacy from the Stop TB Partnership, Kenya was represented by four MPs with two assistants at the conference with sponsorship from the Government, making this the largest political class delegation to a Lung health conference in Kenya's history.

13.4 The Global TB Caucus Meeting

The four MPs attending the Lung Conference also represented the country in the second TB Caucus meeting which was also held in South Africa in 2015. It was decided at this meeting that Kenya would host a forum to establish the African TB Caucus in 2016.

13.5 Launch of STOP TB Partnership – Kenya Strategic Plan

The STOP TB Partnership - Kenya launched its first strategic plan (2014 -2018) in November 2015. The plan addresses the social determinants of health that go beyond the health sector and taps into the comparative advantage of the business and corporate world; builds on the aspirations, commitments and determination of the Government and the people of Kenya; and weaves these with the aspirations of patients and their families who are the core the Partnership. The STOP TB Partnership - Kenya spearheads a year-round, doorstep-reaching platform for a healthy and prosperous Kenya free from TB and other poverty-related diseases. The launch attracted huge media coverage with over 200 articles generated from the event.

13.6 Communication

13.6.1. World TB Day 2015

Two events were held to commemorate World TB Day 2015. The first was a breakfast meeting that saw the launch of the NTLD-Program Strategic Plan 2015-2018, at Laico Hotel, Nairobi, presided over by Dr Nicolas Muraguri, the Director of Medical Services (DMS) who represented the Cabinet Secretary for Health. High-level dignitaries among them the US Ambassador to Kenya Mr Robert F. Godec and WHO Representative Dr Custodia Mandlhate attended this event. Other dignitaries included County Executives for Health and County Directors.

The second and main event to mark World TB Day 2015 was a public baraza held in Siaya County under the theme "Reach, Treat, Cure Everyone" and slogan: "Is that Cough TB? Get tested, Get cured!" The event brought together national and county government officials, TB control and civil society partners, patients groups and the media to create public awareness around the fact that TB still remains a global public health problem.

The national event was graced by Siaya County Deputy Governor, Hon. Wilson Onyango, Ministry of Health officials including the Head of Department of Preventive and Promotive Health Services, Dr Jackson Kioko, Head of the NTLD-Program, Dr Enos Masini, as well as representatives from WHO, CDC, AMREF, PATH, CHS and County Government officials.

The event was also graced by Mrs Sarah Obama, grandmother to US President Barrack Obama and Ms Clariss Okello, Miss Tourism Siaya County, present to lend their voices to the fight against TB in Kenya. After the public baraza, the Governor and CS representative presented awards to schools that participated in a TB essay competition and later led the national launch of IPT. The World TB Day 015 commemoration was supported by among others the Government of Kenya, USAID through the TB ARC activity, CDC, World Bank, IOM, Amref Health Africa and the Siaya County Government.

Tuberculosis kills 60 per day, study indicates

BY RAMADHAN RAJAB

IMAGINE terrorists storm a mall on a Monday, massacre 60 people, come back every day of the month and kill 60 people again but the public and government are not enraged.

That is what tuberculosis is doing to Kenyans.

According to Stop TB Partnership, 60 Kenyans die from the disease everyday.

Launching the Stop TB campaign in Nairobi yesterday, chairman Dr Jeremiah Chakaya said most deaths occur in people between 15 and 55 years.

"Despite this, the deaths seem not to concern many," he said.

"This is the case because it's a silent killer."

Chakaya said there would be an outcry if a bus were to plunge into a river with 60 people perishing every day.

He said Kenya loses about Sh11 billion annually as a result of TB.

Enos Masini, head of the National Tuberculosis Programme at the Health ministry, said TB is the fourth leading cause of death in the country.

More than 110,000 are infected yearly but only 90,000 are put on treatment, the official said.

"This leaves about 20,000, hence the need to widen treatment," he said.

Figure 28 media coverage

HEALTH | Survey planned to gauge disease prevalence

New fight against tuberculosis starts

Programme to involve individuals and agencies in pooling funds and creating awareness

BY EUNICE KILONZO

@eunicekilonzo
Ekilonzo@ke.nationmedia.com

A plan to check the spread of tuberculosis in the country is in the works.

The health ministry seeks to involve individuals and organisations in pooling resources to tackle the disease and also "increase public information on TB prevention, care and control".

The disease kills at least 60 people daily with nearly 100,000 infections each year. It costs the country nearly Sh11 billion annually in hospitalisation costs, absenteeism from work, death and expenditures for care.

A Stop TB Partnership Kenya Board has been set up under interim chairman Jeremiah Chakaya.

Dr Chakaya said: "The disease affects all people but it is mostly concentrated among the poor. The high rates of malnutrition, overcrowding, poorly ventilated houses with people who already have TB makes treatment harder."

According to the 2014-2018

BACKGROUND

How disease spreads

Tuberculosis is a contagious airborne disease caused by a germ called *Mycobacterium tuberculosis*.

It usually affects the lungs, but it can also affect the brain, the kidneys, or the spine. When an infected person coughs or sneezes, droplet nuclei containing *M. tuberculosis* are expelled into the air. If another person inhales that air, he or she may become infected.

However, not everyone infected with the bacteria becomes sick.

Source: Centre for Diseases Control

Strategic Plan for the project, one in every three Kenyans has the tuberculosis bacteria but are not ill and lack symptoms. This translates to about 14.4 million Kenyans who have the latent infection, which is not contagious.

However, it can turn into active tuberculosis when immunity is reduced. Those at risk are HIV/Aids patients, people who eat a poor diet, consume excessive alcohol, those with a long term use

of certain medications such as steroids, diabetes patients and smokers.

Other people at risk are young people, the elderly and those who work in overcrowded and poorly ventilated places.

Dr Chakaya said most people with tuberculosis are treated using a six-month drug regimen.

However, inappropriate or incorrect use of antimicrobial drugs, or use of single drugs, poor quality medicines or bad storage conditions, and premature treatment interruption can cause multi-drug resistant tuberculosis.

The multi-drug resistant tuberculosis can be transmitted in crowded settings such as prisons and hospitals.

Head of TB Department at the Ministry of Health Enos Masini said counties have to invest in preventing the infection as treatment is costly.

"While it takes the government between Sh5,000 to Sh10,000 to treat the 'normal' tuberculosis for six months it will take nearly Sh1.5 to Sh2 million to treat a patient with the resistant strain for about two years," Dr Masini said yesterday.

Currently, the ministry is conducting a nationwide tuberculosis survey targeting 72,000 people in urban and rural areas to gauge the disease prevalence in the country.

Media articles generated on the launch of the STOP TB Partnership – Kenya Strategic Plan

Wito kwa serikali iongeze pesa za kupambana na TB

NAIROBI

Na BERNARDINE MUTANU

KAMPENI ya kudhibiti Kifua Kikuu imeathirwa sana na ukosefu wa pesa na rasilimali nchini.

Wakati wa kuzindua kampeni mpya ya kukomesha kifua kikuu nchini, mkuu wa mpango wa kitaifa wa kukomesha Kifua Kikuu Dkt Enos Masini, alisema kuna haja kubwa ya serikali kuongeza pesa za kukabiliana na ugonjwa huo.

Alisema hayo huku mashirika yasiyo ya serikali yakitoa wito kwa serikali kutwa kuanzishwa mpango huo kutokana na hali kwamba asilimia 90 ya utadhiuli wa miradi ya ugonjwa huo hutoka kwa Hazina ya Ulimwengu.

Akiongea wakati wa uzinduzi huo, mwenyekiti wa Stop TB Partnership Kenya, Dkt Jeremiah Chakaya, alisema serikali inafaa kuwa tayari kutwaa wote wa kugharamia miradi ya Kifua Kikuu nchini.

Aliwapongeza wabunge 158 waliotoa sahihi mikataba wa Barcelona wa kukabiliana na kukomesha Kifua Kikuu.

"Tunataka kupunguza maambukizi ya Kifua Kikuu kwa asilimia 90 kote

ulimwenguni na Kenya katika muda wa miaka 20 ijayo," alisema.

Kampeni hiyo mpya inalenga kuwafika watu wote popote waliko - nyumbani, kazini, michezoni, safirini au hata katika maeneo ya burudani kwa lengo la kuenzea ujumbe wa kukomesha kuenza kwa Kifua Kikuu, akasema matrubu wa mpango wa Stop TB Partnership Kenya Bi Evaline Kibuchi.

Kila mtu ana uwezo wa kupata Kifua Kikuu kutokana na ukweli kwamba ugonjwa huo huenea kwa haraka kupitia mazungumzo ya ana kwa ana, kuko-ho, kupumua na kuchemua.

Ugonjwa wa Kifua Kikuu huna bila kujitangaza na ndiyo sababu watu hawapigi kelele nyingi. Lakini ni wakati wa kubadilisha mtindo huo," akasema Dkt Chakaya.

Mhali na kwamba watu 60 hupoteza maisha yao kila siku kutokana na maradhi ya Kifua Kikuu, wengine karibu 100,000 huambukizwa kila mwaka.

Serikali hutumia Sh11 bilioni kila mwaka kwa matibabu ya kifua kikuu, akasema.

"Ukweli ni kwamba huu ndio ugonjwa wa nne unaosababisha vifo vingi zaidi nchini," akasema Dkt Masini.

Ingawa Kenya imeorodheshwa ya nne barani Afrika baada ya Afrika Kusini, Nigeria na Ethiopia, na ya 15 mlongoni mwa mataifa 22 yaliyo na visa vingi



WAGONJWA wakishiriki kupimwa wakati wa kuzinduliwa kwa utafitiku huu kuenza kwa ugonjwa wa Kifua Kikuu mwaka wa 2015 eneo la Mshomoroni Kaunti ya Mombasa. Serikali imeomba kuongezea pesa za kukabiliana na ugonjwa huo nchini. Picha/MAKTABA

zaidi vya Kifua Kikuu ulimwenguni, Dkt Masini alisema serikali imejitaka-mua kukomesha ugonjwa huo.

"Zaidi ya asilimia 60 ya wagonjwa wa Kifua Kikuu hutibiwa hapa nchini. Lakini karibu asilimia 20 wanaoambukizwa huwa hawapimwi au kutibiwa na huendelea kuenzea ugonjwa huo," akasema Dkt Masini.

Baadhi ya sababu za wagonjwa kuenza Kifua Kikuu ni pamoja na umaskini uhamiaji, wakasema wataalamu.

Wanasachi 1.2 milioni wametibiwa ugonjwa wa Kifua Kikuu, katika muda wa miaka kumi iliyopita, wakasema na kuongeza kwamba serikali imezindua mpango wa watu kupimwa na wanaopatikana kungua kutibiwa bure.

Figure 29 More media coverage

Fight against tuberculosis now to focus on children

By AUDREY CHEPTOO

The National Tuberculosis, Leprosy and Lung Disease (NTLD) Unit wants all health facilities to abolish fees for testing tuberculosis in children below five years.

Currently, there is a cost for Tuberculosis (TB) testing in children and it varies from one institution to another.

"We are pushing for free testing and diagnosis in cases involving children," said NTLD Paediatric Unit Coordinator Anne Kathure during a TB sensitisation conference at a Nairobi hotel.

NTLD Programme Deputy Head Mau-

reen Kamene said children below five years are at high risk of developing TB.

"Although children don't transmit TB, they are affected and many die from the disease each year," Dr Kamene said.

A 2014 report by the NTLD revealed that children make up 11 per cent of all tuberculosis (TB) cases in Kenya, compared to 10.6 per cent in 2012 and 9.5 per cent in 2013. In addition, there are at least one million cases of TB worldwide among children younger than 15 years.

To curb the prevalence of child TB, NTLD will begin a major distribution of

Isoniazid Preventative Treatment for children starting on World Tuberculosis Day on March 24.

"This preventative therapy will see a reduction in the infection rate of TB among children. Also, case finding and treatment of infectious TB cases will significantly reduce the burden of child TB," said Dr Kathure.

Diagnosis in children is not easy though there have been significant improvements, she said.

"Kenya has adopted new and fast diagnostic tools," said Kamene.

13.6.2 Mass Media Activities

In the build up to and during the 2015 World TB Day commemoration, the NTLD-Program received several free slots for radio and TV talk shows from various media houses including KBC, The Standard Group, Nation Media Group and MediaMax among others. This led to good media coverage on radio, TV and print including newspaper supplements in local dailies. **Review of IEC and Promotional Materials**

The World TB 2015 planning committee reviewed and approved assorted IEC/promotional materials for printing and distribution as well as harmonizing the branding of these items. Radio/TV talking points were developed, reviewed and approved for use by all guests invited to give talks on radio and TV. Newspaper supplements and guest speeches were developed and shared with MoH headquarters for approval.



Head of TB Program Dr Enos Masini with Mama Sarah Obama during World TB Day



WTBD 2015 Procession led by Siaya Deputy Governor, Hon. Wilson Onyango, Head, Preventive and Promotive Health Department Dr Jackson Kioko, Siaya County CEC Health Dr E Owilla, NTLD Head Dr E Masini, USAID Representative Dr M Maina and other dignitaries



DMS Dr Nicholas Muraguri, US Ambassador to Kenya H E Robert Godec and other dignitaries at the NSP Launch

Table 7: Below is a summary of IEC materials printed (2015)

Item	Quantity	Item	Quantity
Posters Tb Prevention	15,000	Polo T-Shirt	300
Reflector Jackets	1,300	Round Neck T-Shirts	350
Road Banners	6	Ordinary Caps	274
Rollup Banners	7	Stickers	10,000
Faqs On Tb (Brochures)	4,500	Media Info Packs	2,100
Pilot Shirts	300	Lessos	50

Secondment of Communications Officer to the NTLD-Program

Through the USAID funded TB ARC activity, a Communications Officer was hired in January 2015 and seconded to the NTLD-Program. The Officer has been mandated with leading the planning, implementation and follow-up of NTLD-Program communication activities.

Updated and Interactive NTLD-Program Website and Social Media Platforms

This was finalized through a Stakeholder's Validation Workshop held in February 2015 and 500 seed copies printed and delivered to the NTLD-Program for dissemination to national and county stakeholders. The communication strategy was also posted on the revamped NTLD-Program website for wider circulation to a global online audience.

Rebranding of the NTLD-Program

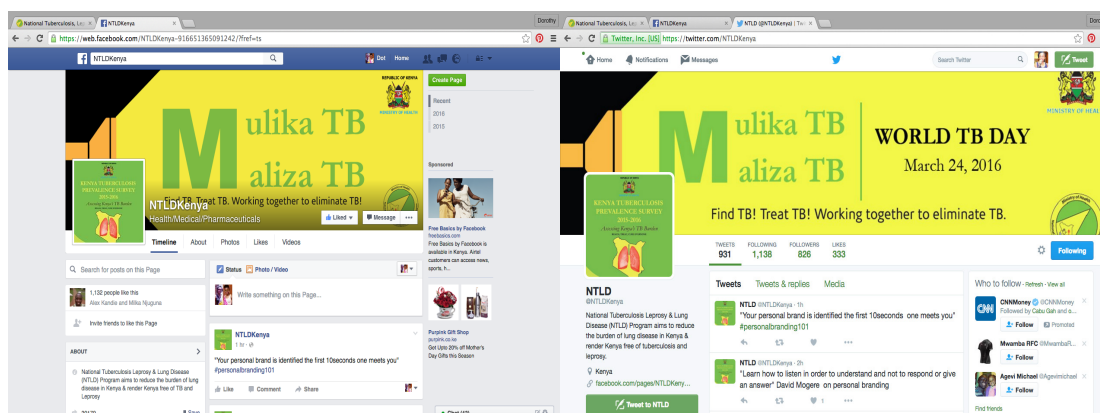
The NTLD-Program received three generic banners as part of the re-branding from a Unit to Program. The banners bear the vision and mission of the NTLD-Program.

TB Communications Strategy "I the Cure for TB"

The NTLD-Program website hosting service provider was changed to allow for flexibility in managing and updating content. The website was been revamped and updated ensuring that the branding is consistent across all program materials and media platforms

The NTLD-Program Facebook and Twitter (@NTLDKenya) accounts were successfully set up and launched in February 2015. The website and social media platforms feature updates on topical TB subjects, information on and from meetings, workshops and upcoming events. They are used to publicize TB activities to the general public and to create awareness to the online community.

In the last six months to Sept 2015, the number of likes on Facebook doubled from 437 to 941 and Twitter almost quadrupled from 133 to 527 followers in the same period.



NTLD-Program facebook Profile: 133 Followers (Feb 23 2015); NTLD-Program Twitter Profile: 527 Followers (Sep 23 2015)

Media Sensitization Workshop

A media sensitization workshop was held in March 2015 to improve the media coverage of TB and lung diseases in Kenya. The workshop afforded 18 health journalists from 12 media houses an opportunity to hear and interact with TB experts from the NTLD-Program and other TB control partners, individuals who have been successfully treated for TB and AERAS – a South African based organization championing the development of TB vaccines.

From this workshop, there was a generation of press, radio and television stories and reports on broad aspects of TB control in Kenya and linked to the World TB Day 2015 call to Reach, Treat and Cure Everyone of TB.

13.6.3. Social Mobilization

Social mobilization was carried out in schools and at chief barazas bringing participants together to discuss TB issues as well as prevention and control strategies. Most of the social mobilization activities were carried out during World TB Day and were supported by CDC, Amref Health Africa and other partners at county level.

13.6.4. Community Engagement

Table 8: Tools and equipment distribution

Community TB Care Tools Printed and Equipment Distributed in 2015				
Contact tracing booklets	Treatment interruption Booklets	Referrals Booklets	TB Screening tools	Monthly reporting tool
5,000	7,000	12,000	15,000	23,150

a. Trainings and Meetings

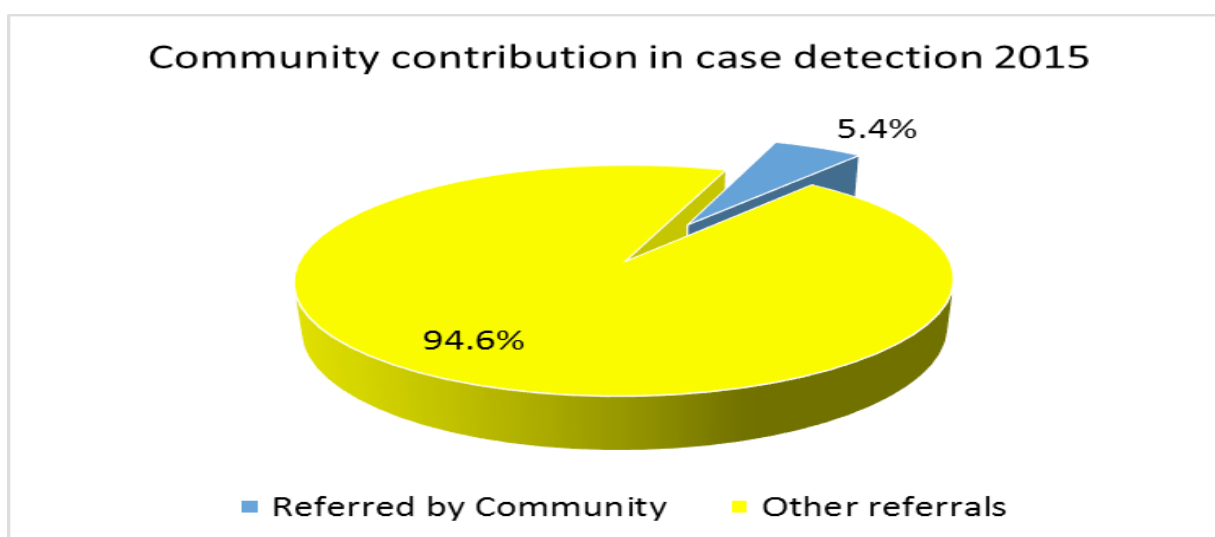
During the year under review, Amref Health Africa conducted several trainings in the community through the support of Global Fund. A total of 2,314 CHVs were trained on CB DOT in 239 TB control zones, 107 HCWs trained on screening of prisoners and PLHIV, 28 Field Officers were trained in operations research and 287 HCWs trained on nutritional assessment of TB patients. The trainings helped in the identification of cases from the community as well as the management of TB cases identified in the facilities. Through the CSOs, 686 biannual meetings of community health units to review CB DOT activities were conducted.

b. Community Based TB Activities

Global Fund supported two major community based activities through non-state actors. Amref Health Africa sub granted 39 CSOs to implement the activities. New Smear Positive TB patients visited in their homes during this period were 18,712 (11,841 male and 6871 female). During the visits, contacts were given Health Education and Infection Control messages and screened for TB. All the clients who were found to have TB symptoms were referred for further investigation and those found to have TB were enrolled into care. Tracing of treatment interrupters was done for a total of 5,908 (3,705 male and 2,203 female) TB patients who were traced and those found were returned to treatment. For those not found, a report was forwarded to the TB clinic in-charges for records update.

13.6.5. Contribution of Communities and CSOs in TB Control

In 2015, CHVs and civil society organizations contributed 5.4% of the cases notified by the NTLD-Program as indicated on the chart below.



Another key role played by the community during the period under review was provision of patient support to enhance adherence by observing treatment intake (DOT). Majority (87%) of patients were supported by household members.

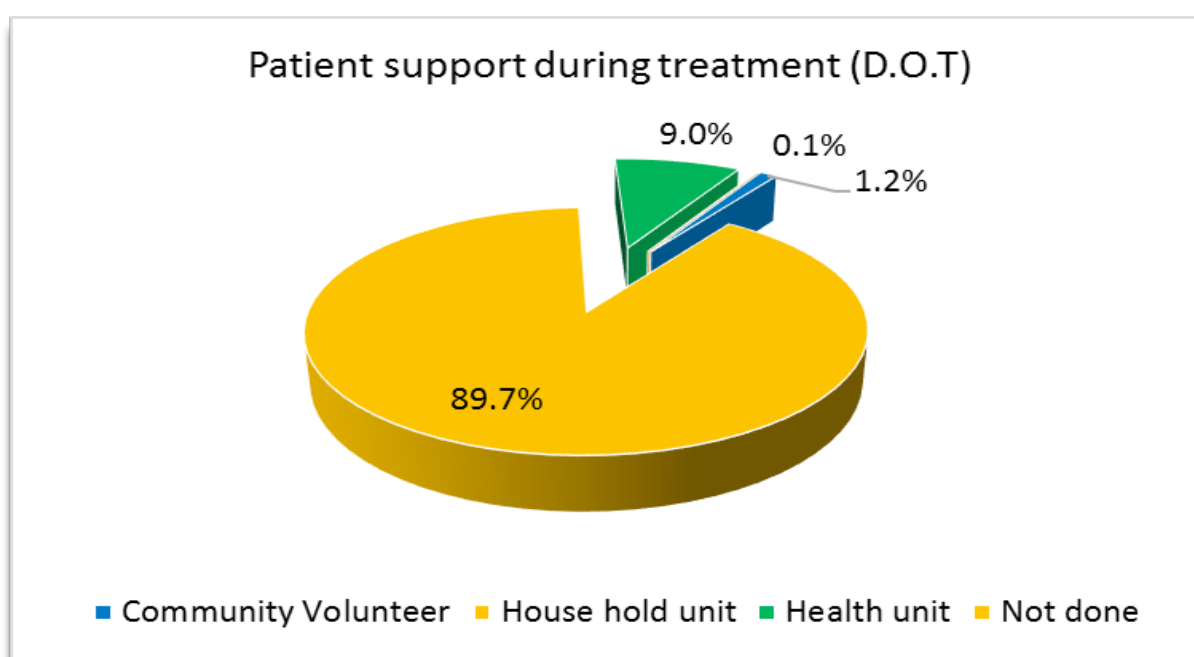
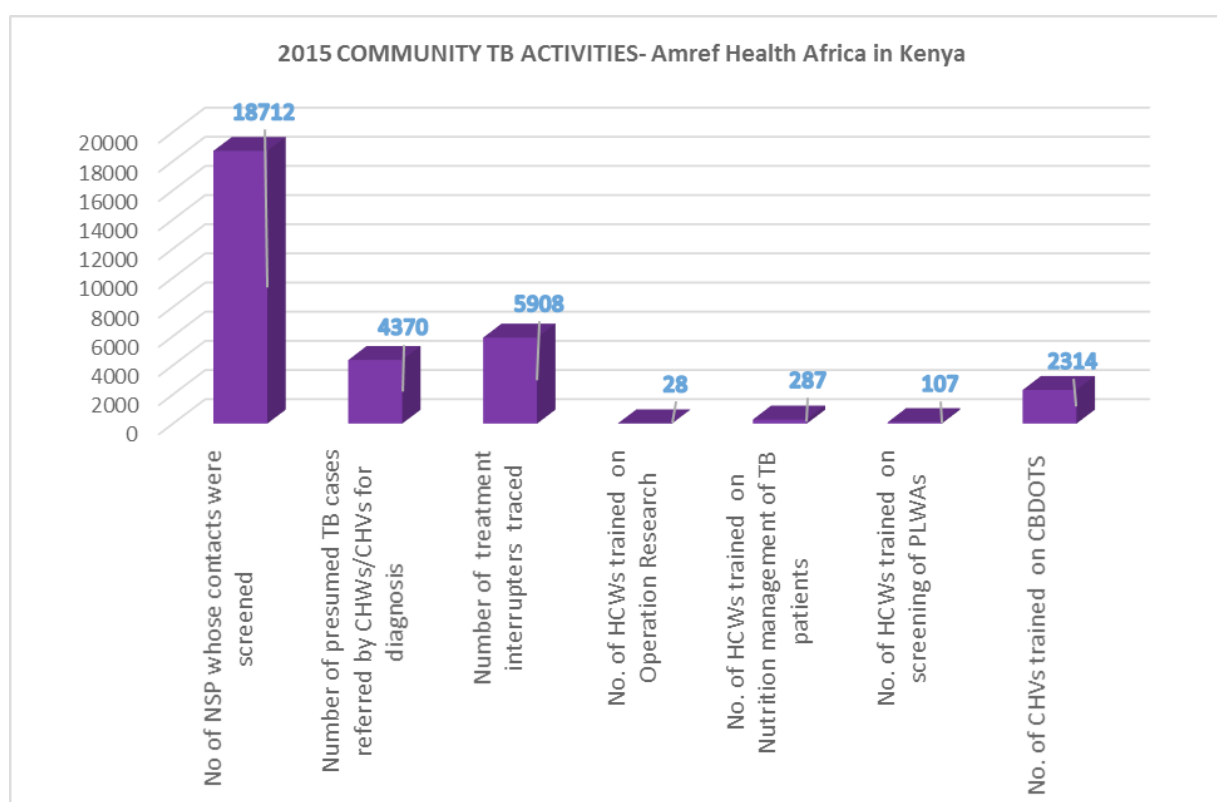


Figure 30: Activities at the community level (2015)



14 INFECTION PREVENTION AND CONTROL (IPC)

14.1 Capacity Building – County and Regional Training

Global Fund supported infection prevention and control (IPC) training of HCWs in five counties namely: Nyamira, Taita Taveta, Busia, Nakuru, Kisii and Nairobi where a total of 156 HCWs from 78 health facilities were trained on principles, approaches, conducting TB risk assessment, and developing TB IPC plans for their facilities. In addition, Kwale County Government supported IPC and risk assessment training for HCWs

Rwanda hosted a Trainer of Trainers training at the Center of Excellence in Kigali where one HCW from Kenya was trained. During the trainings, it was found necessary to develop the capacity of a critical mass of TOTs on IPC at county level.

14.2 Facility Risk Assessment and Work

IPC is a stepwise process beginning with training, risk assessment then finally development of IPC plans. Risk assessment is carried out by health care workers who have attended training.

Key areas addressed during the risk assessment were the environmental/engineering module. Details of this module were complex for the HCWs building into the need to review the curriculum as is currently ongoing and expected to be completed in 2016.

15 MONITORING AND EVALUATION

15.1 Surveys and Research

The NTLD-Program is mandated to conduct research and surveys, which are used to inform strategies and policy direction.

The year 2015 marked another historic event with the launch of the nationwide TB prevalence survey. The survey aims at measuring the actual TB burden in Kenya by giving TB prevalence per 100,000 population. By the end of 2015, the survey had been conducted in 33% of the 100 targeted clusters drawn from 45 counties.

The survey was made successful by support of various partners including Global Fund providing 85% of the funding and USAID supporting 25% of the funding as well as technical advice. KEMRI provided the Study Coordinator and KNBS was responsible for sampling and marking boundaries for the selected clusters. WHO and CDC also provided technical advice to the survey development process as well as its implementation. One technical advice team from a consortium of organizations visited the country in October to guide the initial data collection process.



Dr Joseph Sitienei, Survey Principal Investigator, shows the Prevalence Survey protocol to guests at the Prevalence Survey Launch

The year 2015 also marked the end of the Drug Resistance Survey (DRS) data collection process. The survey aimed at determining the TB drug resistance situation in Kenya with support from CDC and technical assistance courtesy of WHO, USAID and CDC.

The international community and national TB and HIV programs have identified improving the provision of services and management of children with TB and TB/HIV as a priority. Evaluation of TB/HIV Services for Children in TB Clinics in Kenya is a survey that was conducted in the year 2015.

The NTLD-Program participated in the IUATLD Conference in Cape Town whose theme was "A New Agenda: Lung Health Beyond 2015". The conference discussed the end of the Millennium Development Goals era and a new era took hold guided by the Sustainable Development Goals (SDGs). WHO's new Global TB Strategy will be in its first year of implementation, while the Stop TB Partnership's Global Plan to Stop TB will shift into its next phase.

Below are presentations made during the conference:

1. Mortality survey in Kenya by Dr Susan Gacheri (Oral Presentation)
2. Uptake of IPT in Kenya among PLHIV by Dr E Masini (Oral Presentation)
3. Under-reporting of Sputum Smear-Positive Tuberculosis Cases in Kenya by Faith Ngari (Oral Presentation)

15.2 Routine Reporting

The NTLD-Program continued to strengthen its routine reporting system by building the capacity of counties through provision of reporting tools and training. About 3,500 revised facility registers were printed and distributed.

The presumptive TB register was developed to assist the NTLD-Program in its intensified case finding objectives. The country has about 300 TB control reporting zones with a coordinator who has been equipped with a tablet for electronic reporting using TIBU, of which 75 of them were newly recruited and trained on the same.

Data quality assessment was carried out in 18 randomly selected TB reporting zones. The results show that the data are of good quality with a few areas like timely reporting and incomplete recording tools that require improvement. The use of the patient record card for patient management was found to be below the expected standards.

16 ADMINISTRATION AND FINANCING

16.1 Human Resource Capacity

During the year under review, the NTLD-Program had a staff establishment of 46 mostly seconded by the Government. The NTLD-Program had 17 technical staff, 10 Global Fund project staff, five (5) staff seconded to the Program by TB ARC, eight (8) support staff and seven (7) drivers. The Global Fund Project supported 129 field staff in different cadres: Clinical officers (35) and Laboratory Technologists (94). During the year, JICA and FIND provided technical assistance to the lab by placing a Laboratory Specialist to help build capacity by way of training (JICA) and also provision of equipment and reagents (FIND).

The figures below show allocation per thematic area.

Figure 31: NFM Fund Allocation per module

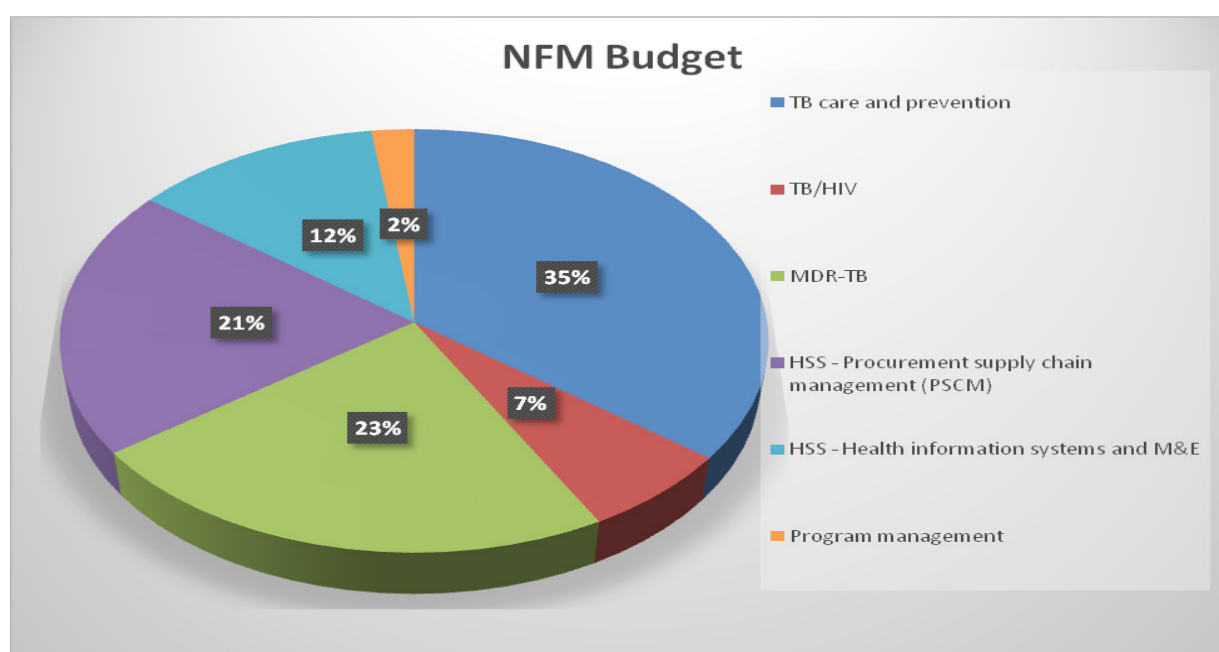


Table 9: Fund allocation under TB ARC

Activity	Amount Received (US\$)	Expenditure (US\$)	Percentage
Laboratory, infrastructure, equipment and supplies	106,634	106,634	2.4
Collaborative TB/HIV activities	2,100,353	2,100,353	48.1
Patient support	290,890	290,890	6.7
All other budget lines for TB	1,870,363	1,870,363	42.8
Total	4,368,240	4,368,240	100

Table 10: Fund allocation under AMREF

Activity	Amount Received (US\$)	Expenditure (US\$)	Percentage
Operation Research and surveys	44,296	12,384	0.77
Patient support	436,255	9181	7.65
All other budget lines for TB	5,221,054	4,496,166	91.6
Total	5,701,605	4,517,731	100

Table 11: Fund allocation under CDC

Activity	Amount (US\$)	Percentage
Ensure quality and comprehensive TB/HIV care	116,405	15.9
Strengthening the diagnosis and management of TB	70,804	9.7
Engaging communities in TB control	56,388	7.7
Strengthen health systems to improve TB/HIV services	92,631	12.7
Commodity management support	57,327	7.8
Strengthen flow, utilization and quality of strategic information	87,294	11.9
Strengthen DR TB diagnosis, surveillance and management	250,879	34.3
TOTAL	731,728	100

Table 12: Fund allocation under JICA

Activity	Allocation (KES)	Percentage
Procurement of Microscopes	16,169,047	47.72
Trainings	17,714,130	52.28
Total	33,883,177	100

1.7 The Government Budget to the NTLD-Program

The Government allocated KES 300 Million to the NTLD-Program for key TB commodities during the FY 2015/2016. This was mainly to supplement the procurement of key commodities such as first line anti-TB medicine and Laboratory reagents.

Table 13 Fund Allocation under GoK

ACTIVITY	AMOUNT (KES)	Percentage
Telephone and mobile phones	122,192.50	6.3
Accommodation- Domestic travel	86,544.00	4.5
Publishing and printing services	50,000.00	2.6
Subscriptions to newspapers	17,175.00	0.9
Catering services	47,880.00	2.5
General office supplies	135,000.00	7
Refined fuels for transport	315,000.00	16.3
Refined fuels for production	157,500.00	8.1
Transport cost & charges	1,000,000.00	51.8
TOTAL BUDGET	1,931,291.50	100

Table 14: Capacity Building: Trainings/workshop/conferences

S/No	Type of training /Capacity building	Source of funding	Number
1	Management trainings (KSG-Local)	Global Fund	37
2	Management Trainings (foreign)	Global Fund	5
3	Workshop/Conferences	GF/TBARC /CDC	11
3	QMS Internal Audit (ISO 9001:2008)	TB ARC	7
4	QMS Lead Auditor (ISO 9001:2008)	TB ARC	4
5	AFB Refresher	Global Fund	82
6	ICD_10_Training	Global Fund	118
7	MOVE_IT_Training	Global Fund	28
8	Pediatric TB Training	Global Fund	62
9	TOT_FOR_ICD10		30
10	Training in electronic reporting	Global Fund	52
11	Presumptive TB register	TBARC/AMREF	110
12	Prevalence survey field staff training on manual and protocol	Global Fund	75
13	TB case management to the County Pharmacists	TB ARC	47
14	DR TB training	Global Fund	125
15	TB/HIV	CDC/GF	150
16	IPT Sensitization	TB ARC/CDC	200
17	GeneXpert Super User	TB ARC	34

Internship

One of the key indicators on youth and women empowerment is to ensure progressive involvement of the youth in internship/volunteer programs as well as transfer of skills to the youth through apprenticeship.

NTLD-Program staff mentored the following youth through internship in 2015:

Table 15: Internship opportunities

S/No	Area of Study	Section Attached	Number
1	Environmental Health and Public Health	Prevention and Health Promotion	1
2	ICT	Monitoring, Evaluation and Research	2
3	Laboratory	Care and Support	2
4	Community	Leprosy	1
	Total		6

Table 16: Performance review meetings

Type of meetings	Planned meeting	No. of meetings held
Staff	12	11
Top management /section	2	2
TB ICC	4	2
Quarterly	4	4
Bi-annual	2	2

16.2 ISO

The NTLD-Program is ISO 9001:2008 certified since 2012.

Table 17: QMS Activities

S/No	Activity	Planned trainings	No. trainings done
1	Internal Quality Audits	4	3
2	Workshop to review of QMS documents	1	1
3	Training of internal Auditors	7	7
4	Training of Lead Auditors	4	4
5	Sensitization of NTLD-Program officers	2	2

APPENDICES

Figure 32: Error rates per machine

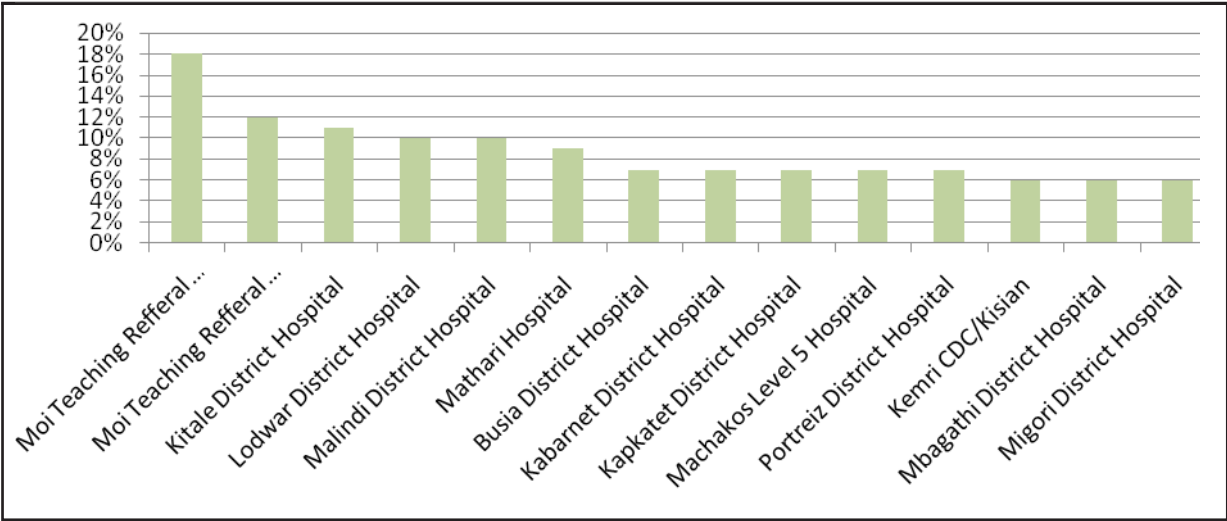


Figure 33: Most sites have Error rates being less than 5%

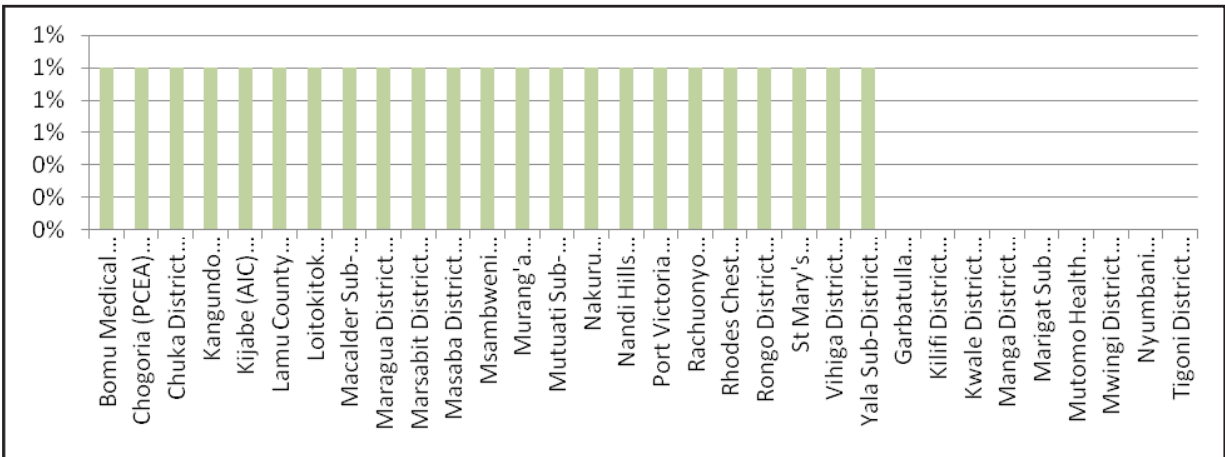
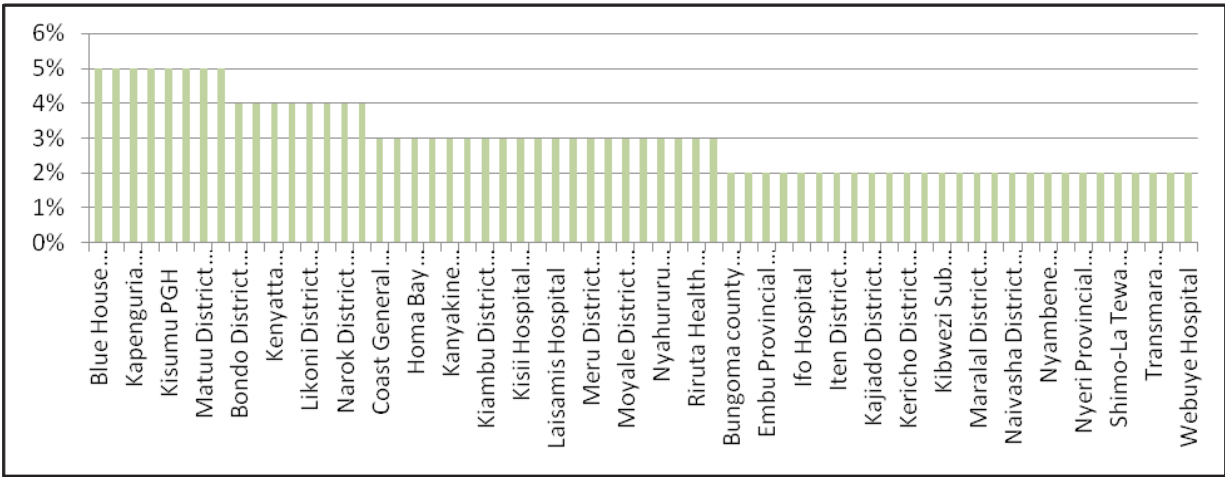


Table 18: Treatment Success Rate among New and Previously Treated Cases 2013 And 2014, 2014 LTFU and Death Rates

County	TSR among previously treated Cases (%)		TSR among New cases (%)		LTFU Rate (%)	Death Rate (%)
	*2013	2014	*2013	2014	2014	2014
Baringo	66	73	81	85	8	7
Bomet	87	89	93	93	3	5
Bungoma	76	81	88	87	4	9
Busia	78	83	83	87	4	9
Elgeyo Marakwet	75	85	82	88	4	8
Embu	88	88	92	90	4	5
Garissa	84	81	94	95	2	3
Homa Bay	78	76	84	84	3	13
Isiolo	86	81	97	87	9	4
Kajiado	83	86	91	92	4	4
Kakamega	82	84	90	88	5	7
Kericho	75	79	89	91	4	5
Kiambu	78	81	88	89	5	6
Kilifi	81	80	89	89	4	7
Kirinyaga	72	80	85	87	5	7
Kisii	71	79	89	90	4	7
Kisumu	79	81	85	87	3	10
Kitui	82	87	92	91	1	8
Kwale	84	83	87	86	4	10
Laikipia	78	86	86	91	4	5
Lamu	93	68	91	96	3	3
Machakos	81	84	89	90	3	6
Makueni	83	89	92	91	2	7
Mandera	92	94	97	97	0	3
Marsabit	100	91	92	95	2	3
Meru	75	81	87	89	6	5
Migori	80	86	89	91	2	7
Mombasa	85	82	92	92	4	5
Murang'a	78	83	89	88	4	7
Nairobi	83	84	89	91	5	5
Nakuru	80	81	88	88	7	6
Nandi	75	67	81	84	4	12
Narok	81	86	91	91	4	5
Nyamira	79	80	86	89	1	10
Nyandarua	85	85	89	89	2	9
Nyeri	80	84	90	89	4	7
Pokot	70	79	83	86	10	4
Samburu	66	52	83	83	12	8
Siaya	80	80	84	83	5	12
Taita Taveta	77	76	84	86	4	11
Tana River	78	79	89	88	5	8
Tharaka Nithi	87	89	95	92	3	5
Trans Nzoia	79	68	89	88	6	7
Turkana	86	80	93	91	7	2
Uasin Gishu	82	77	88	91	4	5
Vihiga	79	77	88	87	3	10
Wajir	90	98	95	96	1	3
Kenya	81	82	89	89	4	6

*TSR based on the new smear positive TB cases

Table 19: IPT Uptake

2015	F<15	F>15	M<15	M>15	TOTAL
January	18	67	15	62	162
February	0	0	0	0	0
March	2	1	1	2	6
April	4	0	4	8	16
May	1	5	2	21	29
June	87	80	95	59	321
July	90	268	92	138	588
August	941	1,574	432	1,668	4,615
September	644	1,360	927	997	3,928
October	305	2,646	729	1,897	5,577
Nov	631	6,504	1,147	3,408	11,690
Dec	697	5,618	1,070	3,441	10,826
TOTAL	3,420	18,123	4,514	11,701	37,758

Table 20: TB HIV Data per county

	% Positive	% Total tested	% ART Uptake		% CPT Uptake	
County	2015	2015	2014	2015	2014	2015
Baringo	28.4	91	83	94	100	99
Bomet	24.7	95	88	86	99	97
Bungoma	31.9	98	96	95	100	100
Busia	47.3	98	96	96	100	99
Elgeyo Marakwet	23.8	96	78	96	100	99
Embu	20.1	97	92	94	99	100
Garissa	6	83	93	67	100	95
Homa Bay	69.3	99	89	97	99	100
Isiolo	28.4	90	97	97	100	99
Kajiado	30.8	95	87	95	100	100
Kakamega	36.1	98	94	95	100	99
Kericho	29.9	98	89	91	100	100
Kiambu	29.6	97	89	91	100	100
Kilifi	28.6	99	93	96	99	99
Kirinyaga	19.3	100	92	97	99	99
Kisii	35.7	100	97	99	100	100
Kisumu	63.1	97	95	92	99	100
Kitui	25.8	100	97	99	100	100
Kwale	28.5	95	76	93	95	98
Laikipia	28.6	99	85	94	100	100
Lamu	23.6	99	95	96	95	98
Machakos	26.9	99	96	95	100	99
Makueni	28.3	99	94	97	100	99
Mandera	1.3	88	88	100	100	100
Marsabit	9.3	85	98	96	100	100
Meru	17.2	98	84	93	99	99
Migori	53.8	99	91	98	100	100
Mombasa	29.1	97	95	98	99	99
Murang'a	23.1	99	95	96	100	100
Nairobi North	36.3	95	76	90	98	99
Nairobi South	37	97	87	92	100	99
Nakuru	37.1	96	84	90	100	100
Nandi	27.6	98	87	96	98	99
Narok	37.9	99	83	92	99	99
Nyamira	37.8	99	95	98	100	100
Nyandarua	31.2	97	93	91	100	100
Nyeri	11.5	94	91	88	99	99
Pokot	21.9	96	81	93	99	100
Samburu	66.6	99	90	91	99	100
Siaya	29.3	93	96	98	99	100
Taita Taveta	11.8	97	87	89	99	98
Tana River	23.9	99	95	98	100	98
Tharaka Nithi	34.5	94	96	100	100	99
Trans Nzoia	28.6	94	77	90	95	99
Turkana	41.9	95	95	99	98	99
Uasin Gishu	45.2	97	91	96	99	100
Vihiga	1.9	98	96	97	100	99
Wajir	33.3	97	86	100	86	100
Kenya	97	33.3	99	99	99	99

County	RR (Includes MDR and XDR) TB			Mono Resistant TB			PDR		
	2013	2014	2015	2013	2014	2015	2013	2014	2015
Baringo	2	2	3	1					0
Bomet		1	6						1
Bungoma	1	4	5						
Busia	5	1	2			1		1	1
Elgeyo Marakwet		3	3						
Embu	1	4	5	1		3			
Garissa	72	47	69						
Homa Bay	8	8	15					1	
Isiolo	2	4	4						
Kajiado	3	6	3			1			
Kakamega	3	2	5						
Kericho	1	6	9			1			0
Kiambu	6	4	10	4	3	1	2	1	
Kilifi	3	5	7						
Kirinyaga	2	7	7	2	2	3			1
Kisii	5	8	10		1				
Kisumu	5	10	15	2	1	1	1	1	
Kitui	5	6	9		1	1			1
Kwale	4	1	2						
Laikipia	1		3						1
Lamu		1	1						
Machakos	1	8	5		3	2		2	
Makueni	6		6			1			0
Marsabit			3						
Meru	2	4	7		1	1		1	
Migori	5	3	6	1			1		
Mombasa	15	12	16		2			1	1
Murang'a	5	2	6	3	2	3			2
Nairobi North	68	63	48		1	20	4	1	5
Nairobi South	58	53	14						
Nakuru	5	4				2			1
Nandi		2	9			1			
Narok	0	3	5	1	2	3			0
Nyamira	2	3	5	1					
Nyandarua	1		3						
Nyeri	2	2	8	1	2	1	1	2	
Pokot	1	2	8			1			1
Siaya	9	2	7	1	1	1			
Taita Taveta	2	10	2						
Tharaka Nithi	5	2	2			1			
Trans Nzoia		1	5						
Turkana		5	5			1			
Uasin Gishu	6	8	5					1	
Vihiga	2	3	0					1	
Kenya	266	269	368	18	21	50	9	13	22

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