



Annual Report | **2016**

National Tuberculosis, Leprosy and Lung disease Program (NTLD – P)

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CHAPTER ONE: INTEGRATED, PATIENT CENTRED CARE AND PREVENTION

1.0: TB and MDR TB Diagnosis

1.1: TB AND MDR TB DIAGNOSIS

Acid Fast Bacilli Microscopy and Xpert MTB/RIF have been key instruments in diagnosis of TB and MDR TB in majority of the laboratories in Kenya.

1.1.1: First and Second Line DST (National Tuberculosis Reference Laboratory): -

The National Tuberculosis Reference Laboratory (NTRL) is anchored under The Division of National Public Health Laboratory. It is a state owned facility performing TB Culture, first and second line drug susceptibility. NTRL works in collaboration with private culture labs across the country that have been enrolled in the EQA program for both Microscopy and Gene Xpert from CDC Atlanta. KEMRI -CDC culture laboratory located in Kisumu City acts as the laboratory's backup.

NTRL does AFB smear microscopy, Gene Xpert MTB, TB culture (Solid and Liquid medium) including first line and second line DST, Line probe assays (LPA Hain) - First line and second line. The patients eligible for culture include health care workers, prisoners, MDR contacts, all presumptive Re-treatment cases with MTB on Xpert MTB/RIF, all MDR patients on treatment and all other categories with rifampicin resistance by Xpert MTB/RIF

The number of previously treated cases in the country in 2016 was approximately 8500. 7908 (93%) samples were received for culture with 6373 (74%) subjected to culture. The number of DR

diagnosed were 284 (4.5%) out of which rifampicin resistant alone were 280 (98%) of the total samples done.

Table 1: Total Sputum done

	NTRL	KEMRI CDC	TOTAL
Total sputum samples received	5689	2219	7908
Total sputum samples cultured	5630	743	6373
DSTs Done	874	214	1088
MDRs Diagnosed (Samples)	80	204	284
Resistance H	181	25	206
Resistance R	262	18	280
LPA Done	1863	480	2343
MTB Detected	7	229	236
No MTB	38	1160	1160
MOTT	43	38	81

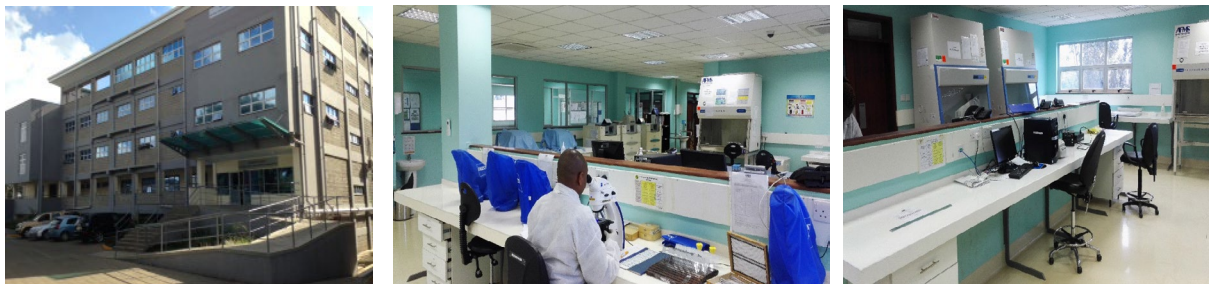


Figure 1: Photos of the new P3 National Tuberculosis Reference Laboratory

Achievement;

- Relocated to the new P3 laboratory.
- Prevalence survey was successfully completed in 2016
- In Jan 2016, NTRL started coordinating Panel Testing for GeneXpert. 2016 C panels for 89 sites.
- In the same year NTRL acquired new equipment among them two refrigerated centrifuges (-400c), one -800c freezer, four 2-80c fridges by the USAID

1.1.2: AFB Microscopy: - In 2016, microscopy diagnostic sites increased from 2170 to 2,178, a slight increase from the previous year, the majority of these (1870/2,178) were in public facilities. Sputum smear microscopy is still used in most microscopy laboratories as a follow up test in TB diagnosis. The NTLD-Program introduced additional LED Fluorescent microscopes in 63 high volume laboratories.

1.1.3: External Quality Assurance (EQA): - During the year under review both Global Fund and TB arc continued to support EQA activities in all counties to Sub County Medical Laboratory Coordinators and County Medical Laboratory Coordinators give EQA feedback to diagnostic sites. Through the support of JICA, 47 CMLTs and 270 SCMLTs went through refresher training to understand the role of EQA and AFB microscopy in both light and fluorescent microscopes. Eighty seven percent (87%) of the laboratories have been enrolled to participate in the EQA program. Sampling of slides by the CTLCs and SCTLCs has greatly improved. There was a 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.

Table 2: AFB Microscopy workload as of 2016 using both FM and ZN microscopes

Method	No of Facilities	Diagnosis (%)			Follow-up (%)			Total
		Pos.	Scanty	Neg.	Pos.	Scanty	Neg.	
ZN	1,874	22,572 (8.1)	1,938 (0.7)	254,743	2,862 (5.6)	954 (1.9)	46,847	329,916
FM	183	11,156 (12.1)	855 (0.9)	80,203	1,535 (6.4)	911 (3.8)	21,675	116,335
Total	2,057	33,728 (9.1)	2,793 (0.8)	334,946	4,397 (5.9)	1,865 (2.5)	68,522	446,251

The JICA program in collaboration with NTLD-P also undertook quality Improvement activities including training focal point persons, CTLCs/SCTLCs, auditing EQA reports, investigating reasons of major errors and seeking solutions. Two counties Meru and Kericho were selected for this purpose since they recorded the highest number of unacceptable results.



Figure 2: Medical lab technologists in Nakuru carrying out Operational research at Nakuru Medical Training College lab

1.1.4: Xpert Diagnosis Report: - In 2012, Kenya adopted the use of Xpert a molecular based technique that greatly reduces the turn-around time for TB diagnosis and detection of Rifampicin resistance. By the end of 2016, there were 150 xpert machines distributed across the country with 250 xpert machines expected in phases by 2017 as per the xpert



Figure 3: Gene Xpert Placement

1.1.5: Xpert Expansion Plan (2011-2016): - GeneXpert has now been designated as the first line diagnostic technology where it is placed. This should help to identify missed cases towards the target numbers.

Table 4: The country has used a phased approach in xpert placement to meet targets set as shown in the table below

Year	2011	2012	2013	2014	2015	2016
Targets		18	115	120	170	200
Actual	3	11 (61.1%)	24 (20.9%)	71 (59.2%)	126 (74.1%)	131 (73%)

1.1.6: Xpert Performance Indicators as of 2016: - Each Xpert instrument was monitored using the following minimum set of indicators:

- Number of total tests performed
- Number and proportion of MTB positive results
- Number and proportion of MTB positive rifampicin resistant results
- Number and proportion of errors
- Number and proportion of invalid results

Quality performance evaluation for Xpert testing is mainly based on indicators as shown in the table below.

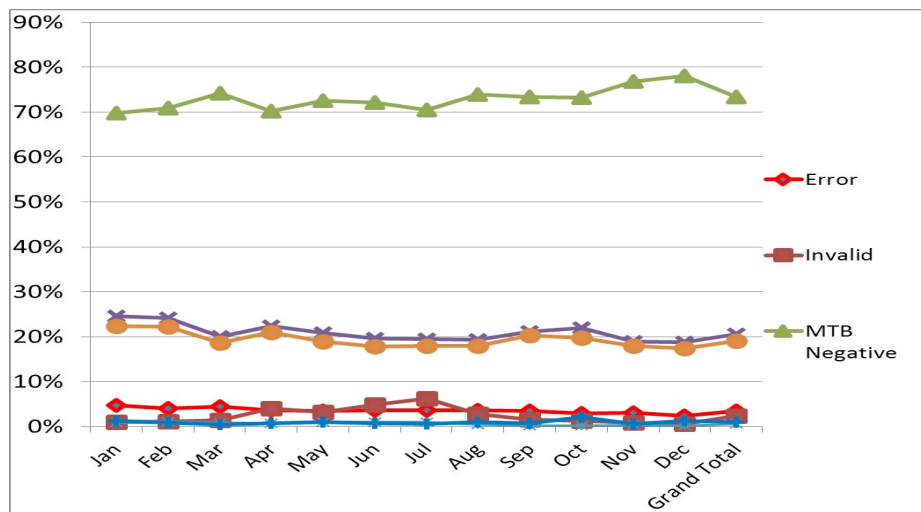


Figure 4: Quality performance evaluation for Xpert testing

1.2: Drug Sensitive TB and Drug Resistant TB

1.2.1: Programmatic Management of Drug Resistant TB

Kenya remains a high burden country for both drug sensitive (DS) and drug resistant TB. Despite the decline in case notification of DS TB cases, the case detection of DR TB cases has been increasing over the years. Despite the increase, there still remains a huge gap of undiagnosed cases given the drug resistance survey findings.

1.2.2: Drug Resistant TB Case Notification in 2016

The increasing trend of the DR TB cases can be attributed to: expansion of access to drug susceptibility testing (DST) with gene Xpert machines from 71 to 126 in 2015, efforts towards capacity building of health care workers, improved sample referral and networking.

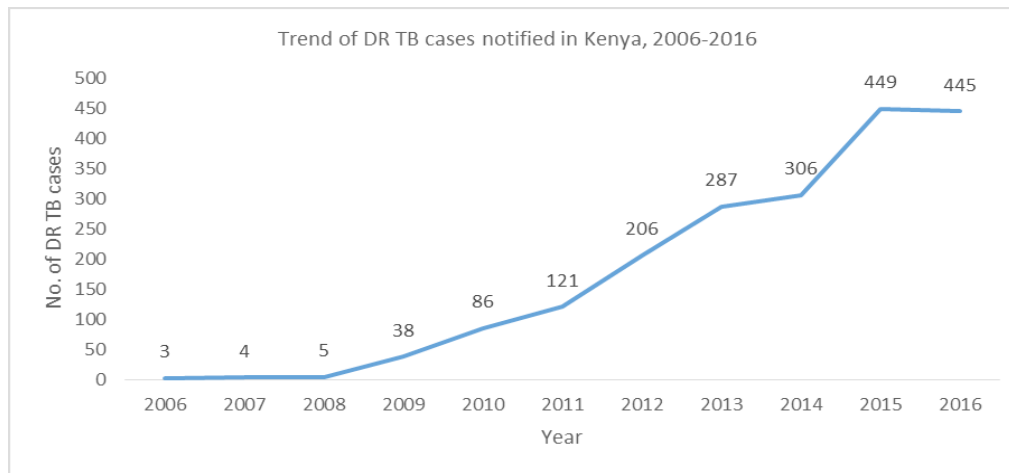


Figure 5: Trend of Drug Resistant TB Case Notification in Kenya

The total number of cases diagnosed in 2016 were 445, a slight decrease in the number of compared to 2015. Males accounted for 62% of cases notified with an average age of 36 years. Children accounted for 5% of the cases with an average age of 5 years. The HIV testing rate

was 99.5% with a HIV positivity rate of 47%. The ART initiation rate was 95% and 100% on Cotrimoxazole (CTX).

1.2.3: 2014 DR TB cohort

The total number of cases notified in 2014 were 306 cases, with males comprising of 63% of the cases notified in 2014 cohort. Children accounted for 4.2 % of the cases with a mean age of 13years. 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). The treatment success TSR among DRTB patients decreased tremendously from 83% to 74 % in 2014 cohort, with a mortality rate of 17%.

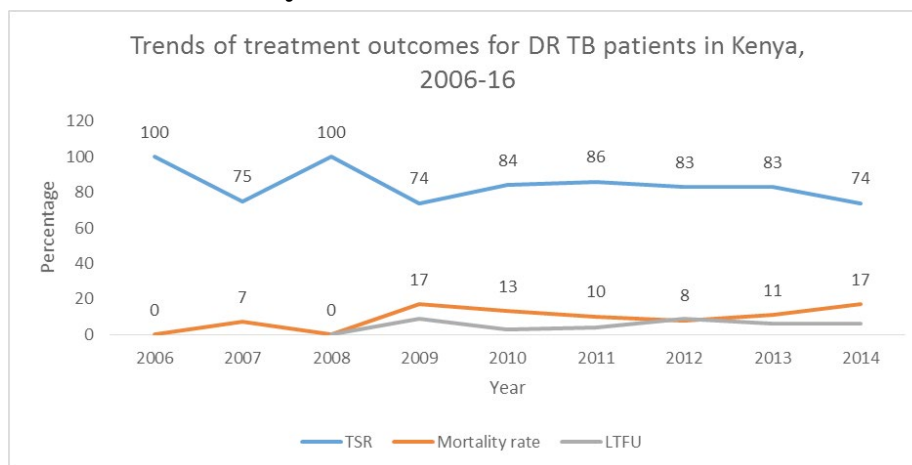


Figure 6: Trends of Treatment outcomes for the DR TB patients in Kenya

1.2.4: ECHO platform

On 1st August 2016, the NTLDP launched a platform known as the Extension for Community Health Outcomes (ECHO) project to address key areas that appertain to TB diagnosis, care and management. This is a model of continuous medical education and capacity building to clinicians on the management of chronic and complex cases in counties and remote regions using technology. Held on every Tuesday of the week, TB topics and real-life case scenarios and didactics are presented to participants who include physicians, paediatricians, clinicians, TB coordinators, partners, clinical teams and County Health management teams. Key thematic areas that have been covered include are as shown below.

Area of focus		Number of ECHO sessions	Total Number of Hrs				Number of case studies shared and discussed
				Male	Female	Total	
1	MDR Training	20	40	171	140	311	14
2	Short term regimen training	5	7	91	64	155	2
3	World TB day Sensitization to CTLCs, SCTLCS, HCWs and Partners	2	3	47	61	108	0

4	TB Prevalence Dissemination	1	1.5	42	34	76	0
5	PMDT/Genexpert	2	1.5	41	25	66	2
6	ECHO Orientation for HCWs	5	9	86	106	192	0
7	Patient Pathway report dissemination	2	2	66	68	134	0
8	Leprosy Training	7	12	219	180	399	5
9	IPC Training	1	1	24	16	40	0
10	Radiology	2	3	47	61	108	0
11	Nutrition training	1	1	31	23	54	1
12	Pharmacovigilance	1	1	19	14	33	0
	TOTAL	49	82	884	792	1676	24

To log in: Download the ECHO-zoom application on the phone, tablet or lap top and use log in using ID no. 407 630 0178

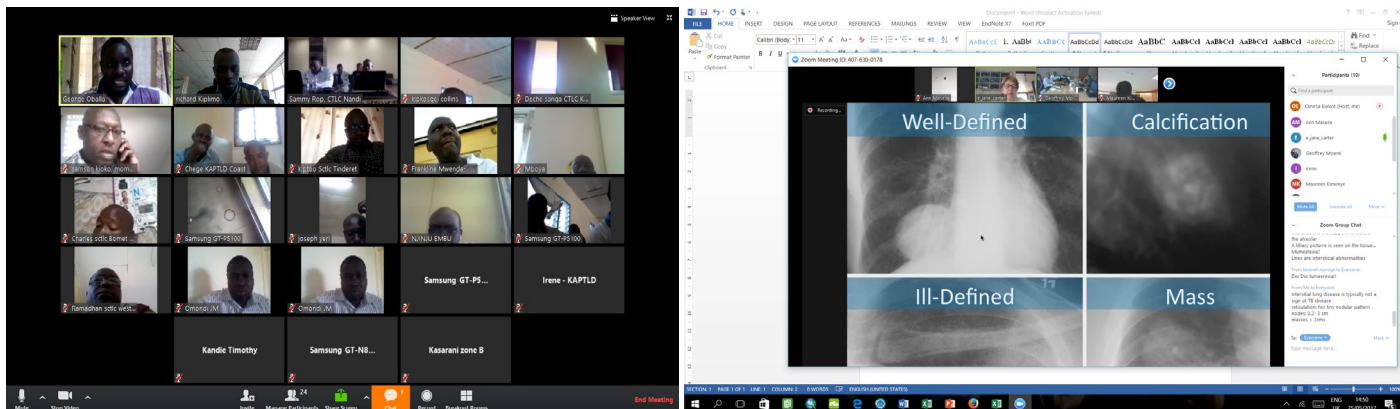


Figure 7: ECHO platform screen

1.2.5: Quality of care

Access to quality care for DR TB patients as described in the National Guidelines is paramount to confer favourable treatment outcomes. The following interventions were put in place in 2016:

Audiometry Services: - In 2016, NTLD-P distributed audiometer machines to 41 counties that were sensitized on its use. These are used for screening for determining the hearing status at baseline and subsequent monthly follow-up during the intensive phase or on need basis. Access to this service is provided for free of charge to all DR TB patients.

On Job mentorship and training: - On job training and mentorship on clinical care and management of DR TB patients in collaboration with key clinical stakeholders has been supported to the counties.

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 also receive the same amount to cater for their transport to the homes of the patients.

1.3: PREVENTION: Infection Prevention and Control and Isoniazid Preventive Therapy

1.3.1: Isoniazid Preventive Therapy for PLHIV

The country carried out a rapid results initiative (RRI) in 2016 targeting to enrol 90% of PLHIV on IPT by December 2016. There were 1,028,378 PLHIV in care and an estimated 465,811 were initiated on IPT with 380,677 being adults and 85,134 children. This translates to 45% of PLHIV who were started on IPT in 2016.

1.3.2: Isoniazid Preventive Therapy for Smear Positive Contact Children below Five Years

There were 4,827 smear positive contacts below the age of five years who received IPT in 2016. This was an increase from the previous two years.

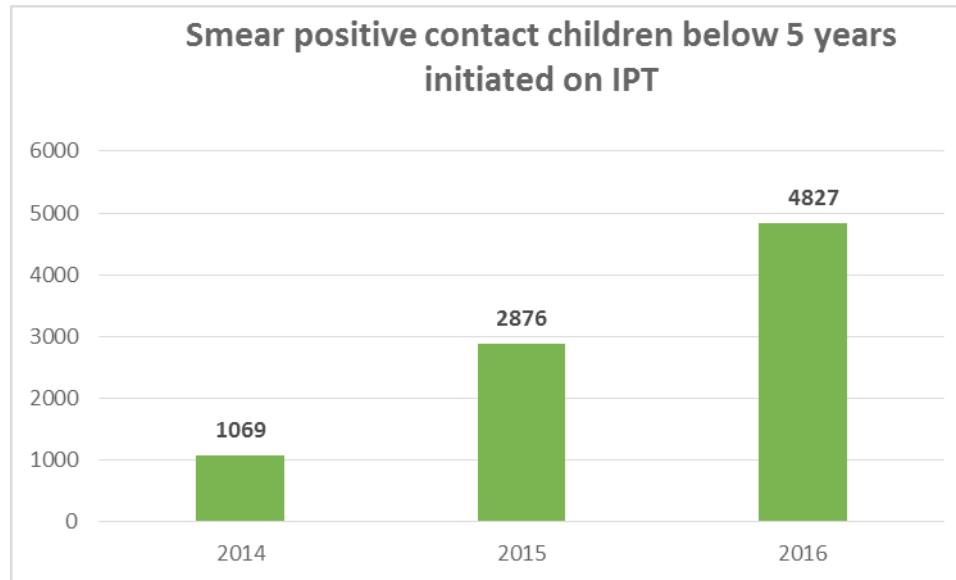


Figure 8: Smear Positive contact children below 5 years initiated on IPT

1.3.3: Bi-directional screening for Tuberculosis and Diabetes Mellitus

The program began the roll out of screening for TB in DM clinics and DM in TB clinics. A training curriculum SOPs and job aids for capacity building these collaborative activities. With Global fund support 30 Trainer of Trainees (ToTs) were trained as part of training clinicians and physicians who manage the two co-morbidities at mostly level 4 and above health facilities. As part of the ToT

training, a work plan was developed to roll out TB DM bi-directional screening in all counties by the end of 2017.

1.3.4: Infection Prevention and Control health facilities

Global Fund supported infection prevention and control (IPC) training of HCWs in 40 Counties, with 26 health care workers trained from each. Therefore, during the year 1,040 HCWs were trained on principles, approaches, conducting TB risk assessment, and developing TB IPC plans for their facilities.

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.

1.4: TB/HIV collaboration activities and management of Comorbidities

1.4.1: HIV Testing in TB Patients

The country recorded a slight drop in HIV testing among TB patients in 2016 compared to 2015. The national HIV testing rate was 96% in 2016 while in 2015 it was 97%. This figure is above the global average of 55% in 2015. All counties in the country except Bomet, Embu, Wajir, Nairobi, Kiambu, Marsabit and Baringo had testing rates above 95%. This is an improvement from 2015 which had 9 counties with HIV testing rate of less than 95% compared to 2016 which had only 7 counties. However, Baringo and Marsabit counties have reported less than 95% HIV testing rate in the two consecutive years of 2015 and 2016.

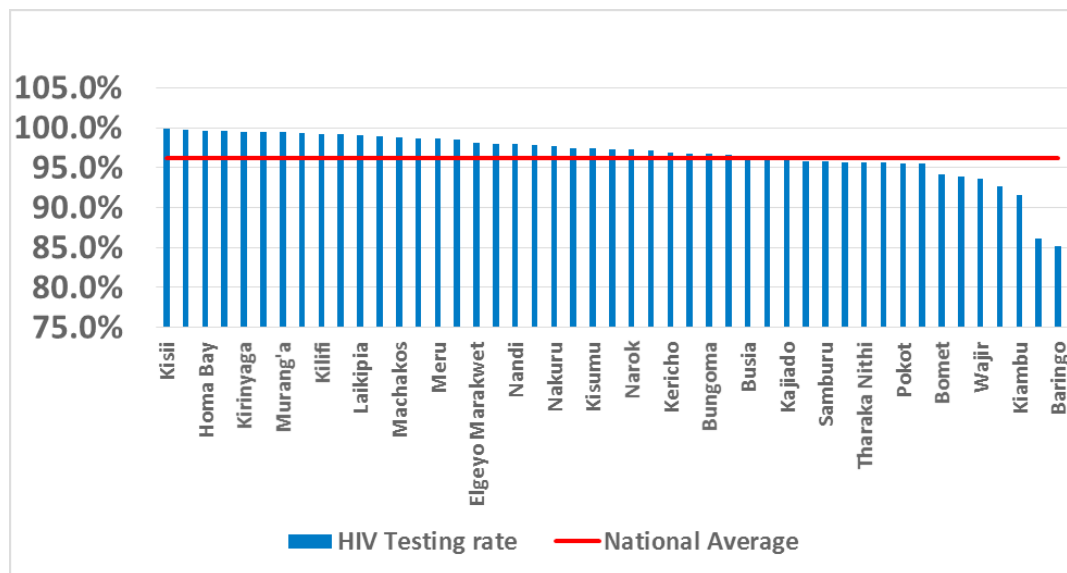


Figure 9: HIV testing rate among TB patients in 2016

1.4.2: TB/HIV Co-infection

The TB/HIV coinfection rates have continued to decline over the years. In 2016, there were 75,916 TB cases notified with an estimated 22,927 (31%) of these patients being HIV positive. In 2015 the TB/HIV co-infection rate was 33%. These rates are still higher compared to the global average of 15% but slightly lower than the African region (36%) in 2015. Thirteen counties reported co-

infection rates above the national average of 31% in 2016, with Homabay, Siaya, Kisumu and Migori counties experiencing co-infection rates higher than 50%.

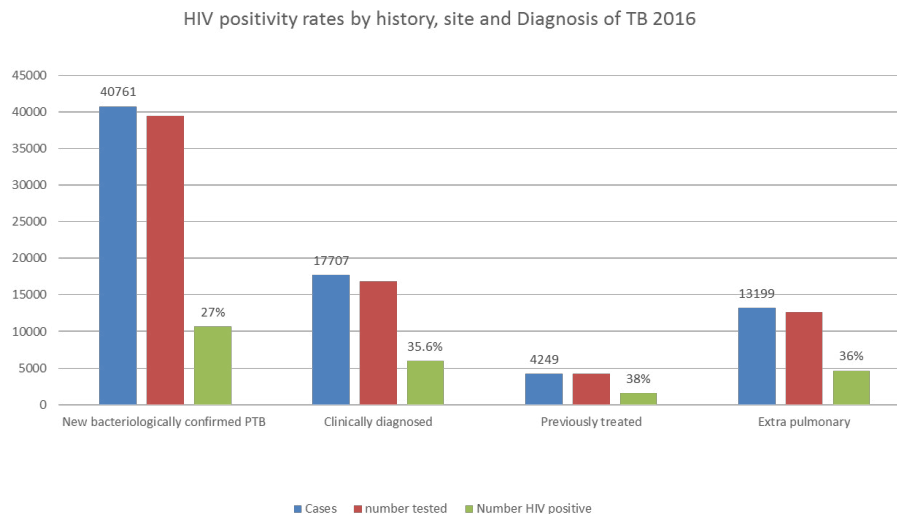


Figure 10: HIV Positivity rates by history, site and diagnosis of TB in 2016

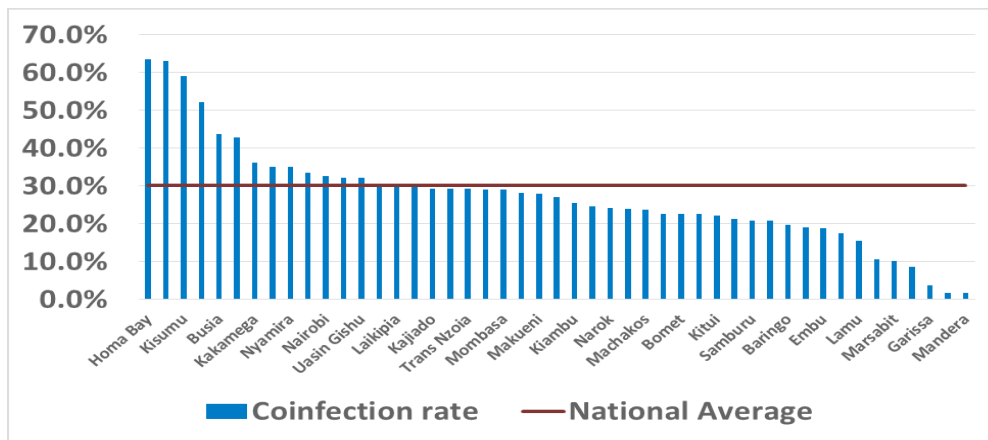


Figure 11: TB/HIV co-infection rates in 2016

1.4.3: Cotrimoxazole Uptake

Cotrimoxazole uptake among TB/HIV co-infected patients in the country remained steady at 99% in 2016 as it was in 2015.

1.4.4: ART Uptake

The test and treat policy has contributed to the higher uptake of ART in TB/HIV co-infected patients in 2016. The ART uptake was 95% in 2016 while in 2014 it was 94% in TB/HIV co-infected patients. According to the 2015 Global Tuberculosis Report, this is higher than the 78% global

and African (80%) ART uptake. Whereas most counties achieved ART uptake of greater than 90% in 2016, Mandera, Kiambu and Kwale did not achieve it.

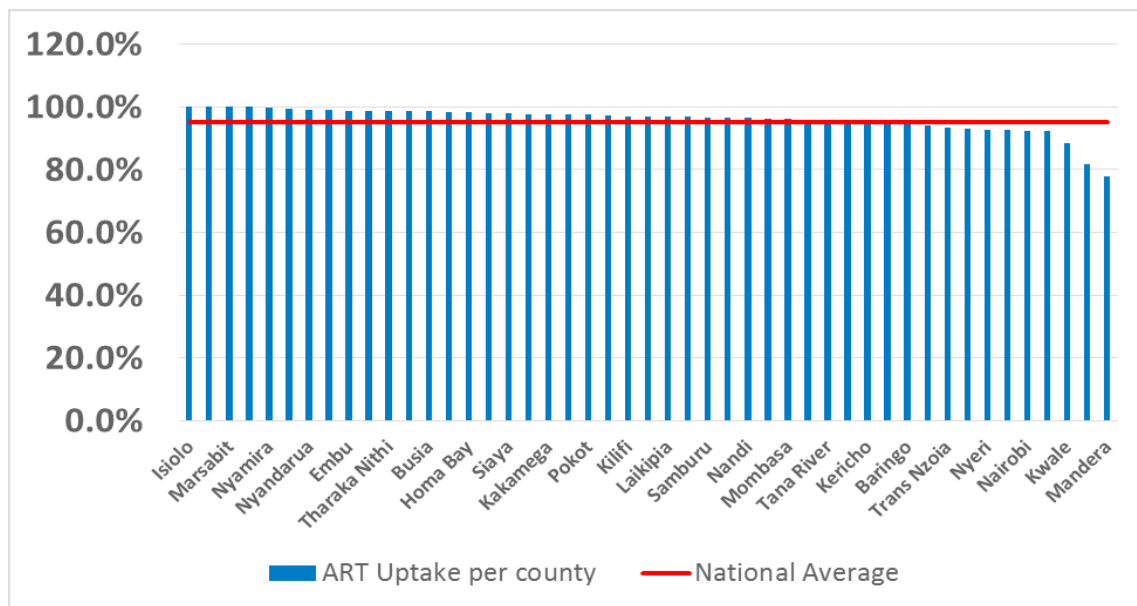


Figure 12: ART uptake in 2016

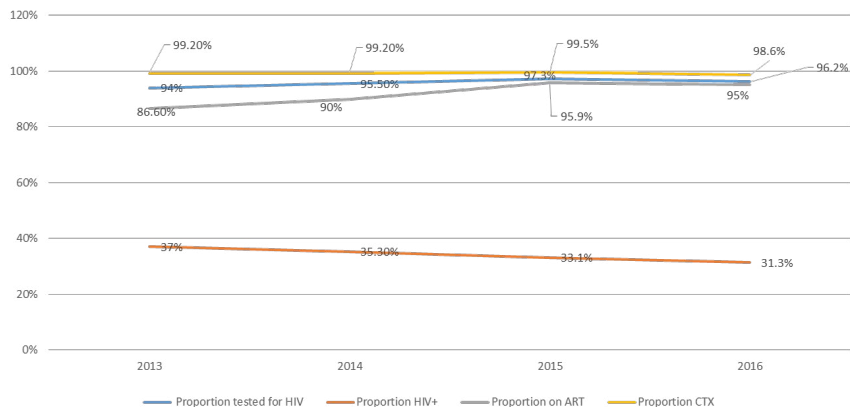


Figure 13: Trends on HTS, ART and CTX uptake among TB cases (2013-2016)

1.4.7: Nutrition situation

According to TIBU data 2016 76536 newly diagnosed drug susceptible and 445 of drug resistant TB are malnourished at the time of diagnosis. 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.

The main nutrition interventions offered to enhance TB treatment include; Therapeutic food support, Nutrition counselling, Nutrition Education, Vitamin A supplementation and Pyridoxine supplementation

Table 5: Nutrition status in 2016

	Number	Percentage
Normal	26166	34.1
Moderate Acute Malnutrition	20437	26.7
Severe Acute Malnutrition	20274	26.5
Overweight	3259	4.2
Obese	6400	8.3
Total	76536	100

Table 6: Children under 5 years with malnutrition

	Number	Percentage
Normal	2308	71.9
Moderate Acute Malnutrition	367	11.4
Severe Acute Malnutrition	448	14

Overweight	42	1.3
Obese	46	1.4

Table 7: DR TB Nutrition status

Type	Numbers	Percentage
Normal	159	35.7
Moderate Acute Malnutrition	134	30.1
Severe Acute Malnutrition	126	28.3
Overweight	10	2.2
Obese	22	4.9
Total	445	

1.4.8: Therapeutic food support for adult patients

In 2016, total number of patients with Severe Acute Malnutrition who received food supplement was 7443 (39%) and total number of patients with Moderate Acute Malnutrition who received food supplement was 6256 (31%).

Table 8: Nutrition Services provided To TB Patients

Type of Service provided	Total Number of patients	Number supplemented
Vitamin A	76536	52928
Pyridoxine	76536	52,563
Nutrition counselling and education	76536	44457
Not receive any intervention	76536	7131

1.4.9: Achievements

The National TB, Leprosy and Lung Disease Program in partnership with Amref Health Africa has continuously ensured improved health service delivery by capacity building for health care workers through trainings as evidenced by training information provided.

On Job Training (OJT) was carried out in 10 counties across the country which has strengthened health service delivery system.

1.5: Commodity and Logistics Section

This section is responsible for coordinating supply chain management of the NTLD-Program's commodities to provide uninterrupted supply of medicines as well as laboratory consumables.

1.5.1: Commodity Security Committee

This committee reviews the NTLD-Program's commodity status on a monthly basis and uses it

for planning and decision-making. The information is shared with the National Government, Counties, Global Fund and partners in the form of a dashboard.

1.5.2: 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 Quan TB software, in quantification of the NTLD-Program's requirements (2016 - 2017) for medicines and laboratory commodities.

1.5.3: Quality Assurance for TB Medicines

The NTLD-Program carried out Joint Post Market Surveillance in collaboration with the Pharmacy and Poisons Board (PPB), NASCOP and the Malaria Control Program. Sampling has been carried out and submitted to the National Quality Control Laboratory for analysis and report writing. Provisional results indicate that the commodities passed all the quality control indicators i.e. uniformity of weight, assays, and dissolution and identification tests. The final report is expected to be available for dissemination by the end of 2017.

1.5.4: Collaboration of NTLD-Program, NASCOP and Malaria

Strengthening of HSS, Pharmacovigilance and capacity building on DHIS-LMIS integration has been supported by Global Fund (NFM). The NTLD-Program in collaboration with the three disease programs: NASCOP and Malaria developed joint activities for the Health Sector Strengthening (HSS) intervention in the country. Some of these activities have been started. The activities include:

- a) Renovation of 31 sub-county stores

- b) Redistribution of medicines and other program commodities at county level
- c) County supportive supervision
- d) Post market surveillance
- e) DHIS-LMIS integration

So far about 417 sub-county Pharmacist and pharmaceutical technologists have been trained. The impact is there are improved completeness, timely and quality reports. Complete migration to DHIS is expected to take place in August 2017.



Figure 14: Mombasa cluster, DHIS-LMIS training

1.5.5: Commodity Reporting

There has been an upward trend in the country reporting rates for the year 2016 (from 66% in January to around 85% in Sept/Oct of the same year). However, due to the 100days strike from November 2016 to March 2017, the reporting rate dropped to 45% by December 2016 to a low of 36% by January 2017. The reporting rate started to rise slowly to 63% by February 2017.

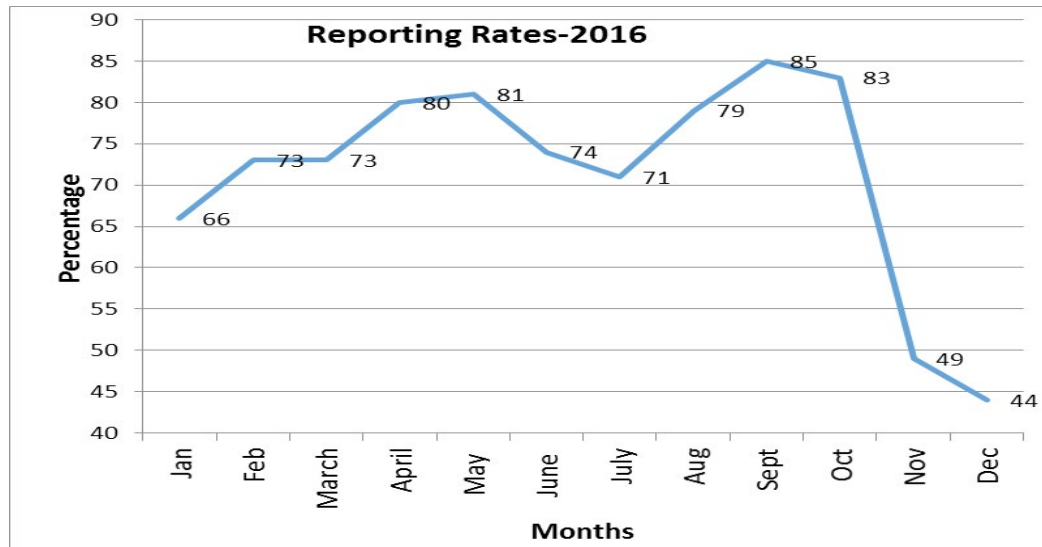


Figure 15: Commodity reporting rates 2016

CHAPTER 2: POLICY, ADVOCACY, CAPACITY AND SYSTEMS STRENGTHENING

2.1: Political commitment including resource allocation

Kenyan government is committed to Ending Tuberculosis in the country by 2030. This is evidenced by

- Deployment of highly trained, skilled, experienced and dedicated staff who are stationed at the National Tuberculosis Leprosy and Lung disease Program whose day to day work is to ensure quality management and control of tuberculosis in the country. In 2016, there were a total of 59 both technical and non-technical staff.
- Counter part financing allocation of KES 300m., GOK development funding of Ksh 403 million for commodities and Kshs Continued collaboration with the counties as key stakeholders; 47 county Tuberculosis and Leprosy coordinators, 47 county medical lab technologists, 47 county pharmacists, 295 sub county Tuberculosis and Leprosy coordinators, 290 sub county medical lab technologists and 290 sub county pharmacist/ Pharmaceutical technologists all deployed within counties and sub counties. Other health care providers within the public, faith based and private sector play a key role in TB management and control.

Political commitment from the TB Parliamentary Caucus in The National Assembly that continuously advocates for increased funding for TB and recognition of TB as a national

burden2.2: Stakeholder engagement including communities, CSOS and private sector
The national government (NTLD-P) has been working closely with the following partners;

- United States Agency for International Development (USAID) through Centre for Health Solutions (CHS) TB Accelerated Response to Care (TB ARC) project has supported the counties to the tune of Ksh 631.1 million on TB control activities both at the national and counties which have been used in capacity building of the health care workers, coordination of the private and public sector TB control activities among other activities.
- Japanese International Cooperation Agency (JICA), contributed a total of Kshs 53.5 million towards training of CMLCs, SCMLCs and Lab Managers on EQA/AFB, data entry and validation, procurement of microscopes and computers,
- Global fund grants – Disbursed through GOK and Amref Health Africa, contributed to approximately Ksh 6.7 billion between 2015-2017 New funding Model which has been used in procurement of commodities, human resource retention, training and capacity building of health care workers, community engagement, and management of TB control activities among others.
- World Health Organization – Apart from sustained technical assistance, they have direct financial assistance approximately Ksh 32 million to support community engagement and leprosy, guideline development, training of health care workers in leprosy control etc
- Centre for Disease Control and Prevention (CDC) - Contributed to approximately Ksh 28.6million which supported the capacity building of the health care workers, and

conferences.

- Kenya Association for Prevention of TB and Lung Disease (KAPTLD)
During the FY 2016/2017, KAPTLD continued to spearhead PPM for TB care and prevention in urban areas as well as efforts to improve access to and quality of care for other Lung diseases (Asthma and COPD). The PPM approach has focused on engaging all providers and has been expanded to all counties with an urban population of >200,000. Through the financial support of various partners, KAPTLD using various training approaches trained 931 Health providers on TB and/or Asthma care and management. Capacity building efforts and regular technical support have contributed improved quality of care in the private sector and led to increased private provider participation and contribution to TB case detection. In 2016, 20% of notified TB cases were managed in the Private Sector.
An Asthma care program implemented in collaboration with the NTLDP and CHMTs has seen Model Asthma clinics established and Asthma patients receive appropriate care and access quality-assured affordable Asthma medicines.
- Civil Society Organizations: The government has continued involving civil society organizations in ending tuberculosis in the country. Through support from donors, the CSOs have been engaged in community systems strengthening, facilitating community TB control activities which includes training of Health care workers (HCWs) community health extension workers (CHEWs), Community Health Volunteers (CHVs) and prison officers, contact investigation, tracing of treatment interrupters, payment of CHVs stipends and review meetings. Through support from Global Fund, Amref Health facilitated tracing of 4,861 treatment interrupters, contact investigation of household members of 21,925 smear positive TB and children under

five years TB patients, support two quarterly data review meetings in 290 sub counties, train 3299 CHEWs/Nutritionist on community based TB care and nutrition management of TB patient respectively, train 3,040 CHVs among other activities.

2.3: Engagement of county leaders ahead of World TB Day 2016

In the build up to World TB Day 2016, the National Tuberculosis, Leprosy and Lung Disease Program (NTLD-Program) held a round-table forum on March 23, 2016 with county leaders from ten high burden TB counties. County health leaders from ten high TB burden counties were in attendance. These included: Nakuru, Kisumu, Kakamega, Homabay, Meru, Mombasa, Nairobi, Kiambu, Turkana and Machakos Counties. The participants at this forum included the County Executive Committee Members of Health, County Directors of Health (CDHs), County Health Officers (CHO) and County TB, Leprosy and Lung Disease Coordinators (CTLs) from the ten counties. TB control partners present included representatives from Centre for Health Solutions – Kenya (CHS), NTLD – Program section heads and the Stop TB Partnership – Kenya.

The objective of the meeting was to engage specific County leaders on the TB burden within specific counties in Kenya and at global level. In addition, there were discussions on TB control activities in the country and in the respective counties. This forum further aimed to address the gaps in specific County TB Programming, as well as to chart a way forward that would be reviewed bi-annually. The county TB profiling exercise aimed to help participants make informed plans of action that included resources available from diverse resource envelopes. The profiling also addressed gaps in the specific Counties and discussed various options and opportunities of addressing these gaps. Specific discussions were centred on availability of TB commodities, more

GeneXpert machines for the ten high burden counties, increased support supervision and review meetings, civil society organization (CSO) activities, access to TIBU data for key county officials and the need to package information on national level support to counties. These issues are to be reviewed in the next forum including considerations to allocate county health resources towards TB activities to ensure sustainability of TB programming through domestic funding.

2.4: Advocacy



Steve Otieno a TB advocate and artist belts out a TB song during the WTB 2016

2.4.1: Engaging TB advocates in advocacy

The program recognises the strength of the voices of persons infected and affected by TB. With support from stop TB partnership, many advocates were given platforms for advocacy to profile TB and use their experiences to push for improved services.

2.4.2: Mobilisation of political leadership to increase political good will for TB in Kenya

World TB day 2016 realised the largest gathering of political leaders coming together to deliberate on TB matters. A gathering of MPs from the Africa region. Five MPs from five African countries meet in Kenya to plan and establish the African TB Caucus. These included: Hon. Abera Buno of Ethiopia, Hon. Ruth Labode of Zimbabwe, Hon. Naome Asimwe of Uganda and Victor Ramathasela (representing Minister Motsoaledi). Besides establishing the caucus, the MPs made the following commitments towards ending TB in Africa:

1. Advocate for every country in Africa to update and implement the National TB Strategic Plan in line with the WHO End TB Strategy, following the highest international standards for all
2. Call upon all African governments to increase their domestic investments and urge development partners and private sector to prioritize and increase investments towards ending TB
3. Support the right of every TB patient to be included in social protection schemes
4. Work with other Parliaments to support building strong and resilient health systems needed to contribute to ending TB in Africa.
5. Establish National Parliamentary TB Caucuses to strengthen political commitment to tackle TB, hold governments accountable and provide a platform to engage civil society and all other key stakeholders.
6. Champion the development and implementation of a single framework for management of TB among cross-border, migrating populations and refugees
7. Address the challenges of Research, Paediatric TB, drug resistant TB, access to drugs and

diagnostics

It is their pledge to work in partnership with all relevant stakeholders to improve the quality of life of the people in Africa.

The Africa TB Caucus is chaired by Hon. Stephen Mule the MP for Matungulu.



MPs from Africa countries joined the world TB day march and presided over the launch of the 'Mulika TB Maliza TB Campaign



Hon. Stephen Mule chair of the National TB Caucus address participants during world TB day commemorations

2.4.3 Other advocacy initiatives

Advocacy strategy development: A series of meetings have been held since January 2016 and a roadmap developed towards the writing of the advocacy strategy. A draft has been reviewed and will be finalised to guide the program on its advocacy priorities.

Advocacy meeting at Mabati Rolling Mills (MRM): STOP TB Partnership, NTLD and TB-ARC representative participated in a follow up meeting with MRM and Federation of Kenya Employers (FKE) to further discuss on the possibility of reviving the workplace program that would include provision of onsite TB services and TB awareness and education to the staff. The FKE representative shared the handbooks that would guide the officials from MRM on how to start a workplace program. The next steps included MRM staff sensitized on TB awareness and a TB work place program and the SCTLC to plan for a mass TB screening on a day to be agreed upon through the support of an implementing partner in the region. NTLD shared IEC materials to aid in increasing knowledge among the workers on TB symptoms and where to seek diagnosis and treatment.

Advocacy at Kabete Polytechnic: TB-ARC supported a TB advocacy meeting at Kabete Polytechnic College in partnership with Nairobi County and Stop TB partnership on 26th May 2016. The meeting aimed to sensitize the leadership of the institution on TB facts and what the institution can do to practice Infection Prevention Control (IPC) given it is a congregate setting. The institution has had 12 TB patients since 2010 with three being DRTB cases. Two of the DR-TB patients have successfully completed treatment and left the college and other one is currently on-going DR-TB treatment. The outcomes of the meeting included integration of TB issues into departmental annual health week where health education will be provided; assessment of the

institutional IPC standards of the hostels and advice the management on ways to implement improvements to meet requisite IPC standards; support capacity building of the college health department with a view to offer TB services at the institution upon the approval of the college management in collaboration with MOH and conduct a mass TB screening activity of all students with the support from APHIA Jijini. These activities will be done in collaboration with the CTLC office Nairobi and partners.

2.5: Social protection

The ministry of health through the national TB program continue to provide social support for MDRTB patients and other TB patients. The main support offered to MDRTB patients include transport reimbursement and food supplements to approximately 445 malnourished TB patients. The program planned to enrol all MDRTB patients on National Health Insurance Fund and develop a social protection policy for all TB patients.

2.6: Universal Health coverage and regulatory frameworks

The government has continued to decentralize services to improve in diagnosis and management of TB patients. The treatment sites has positively increased by 4.7% from 3,522 in 2015 to 3,627 in 2016 and diagnostic has equally increased by 10.4% from 1,972 in 2015 to 2,178 in 2016. In addition has continued to offer free laboratory diagnosis and treatment. The government is working closely with regulatory bodies. In 2015, the court ruled out confining of TB patients treatment interrupters in prisons for medication. The ruling then informed the ministry of health to develop a policy which mandates all the health facilities at the county to establish isolation wards for the TB patients.

2.7 Communication

2.7.1 Prevalence survey communication support

The communication team continued to provide on-going communication support to the survey team on the national prevalence survey. This included attending planning and review meetings, community mobilisation and sensitization, supportive supervision site visits, documentation through photography and videography and providing communications feedback for on-going field activities. The prevalence survey data collection process finally came to a close in the month of July 2016 since its launch in July 2015. By the end of the field work, the survey had successfully covered 44 counties with 31,992 households visited and 63,029 Kenyans enrolled at the survey's Mobile Field Site (Mobile Field Site). The communications team led by PATH through TB ARC was instrumental in the prevalence survey journey in the:



Top to bottom WHO technical reviewer, Hazim Bakir with PS PI Dr Sitienei discusses x-ray collection with radiologist at MFS in Baringo County. Dr. Peou Satha examines the angles of the x-ray machine

- Documentation process through developing survey communication materials i.e. design and content generation of the IEC materials including infographics, brochures, pamphlets, MFS signage;
- Photography and videography;
- Updates on the NTLD website and the different social media handles; and
- Ensuring that the survey engaged the media to increase visibility in the country by
 - i) Securing radio spots to air radio spots which served the role of creating mass awareness on the survey targeting clusters in various counties that had been selected to participate in the survey. KBC, Royal media, Radio Africa, Nation Media and the Standard group were mostly engaged.
 - ii) Requesting for talk show slots in major media houses giving the technical team a chance to explain to the Kenyan audiences why the survey is important to the Kenyan people and giving them a chance to better understand and learn more about TB.

The team took part in several point activities including:

Refresher training survey field teams, January 2016: As part of the recommendations from the mid-term review process, the survey field teams were recalled for a refresher training held in Nakuru from January 11 – 13th, 2016. This was informed by recommendations from the experts taskforce mid-term review site supportive supervision visits that informed on need to have a refresher training for the survey field staff so as to: assess the survey progress to date; provide a platform for experience sharing by teams; assess with the teams and taskforce members the

challenges and opportunities faced by the teams in the field and develop action points/areas of improvement; share once again with teams code of conduct of the TB survey staff and sign declaration as a commitment to the survey process. For communications, it was noted that the communications team need to involve the field team leads in documenting their experiences in the field to better communicate the TB survey progress and highlights.

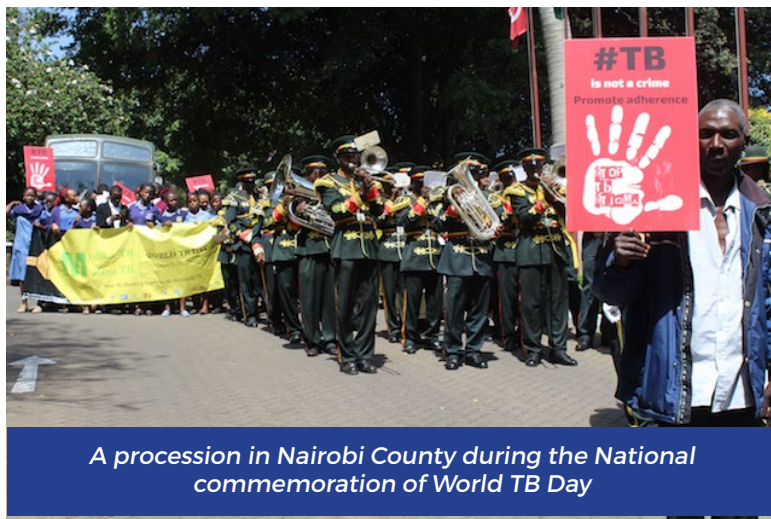
TB Prevalence survey midterm review, January 2016: Communications team was part of the mid-term review with WHO and CDC external technical advisors in Baringo and Kericho Counties on Jan 22-25, 2016. The midterm review aimed to achieve the following: Monitor progress of the survey in relation to management and data collection; Observe field operations at 4 clusters in Baringo and Kericho counties; Observe central activities (laboratory, radiology, data management); Meet with survey staff; Identify challenges and provide recommendations to improve survey implementation. Following the mid-term review visit, technical experts in the taskforce held follow-up meetings to discuss the issues raised on data management, X-ray reading, field staff performance and the overall survey process. The taskforce decided to halt the survey through February 2016 to address the issues raised and for the survey teams to undergo refresher training at the NTLD-Program and National TB Reference Labs. Over this break, the communications team were requested to produce additional IEC materials that would assist in the survey branding and functions. These included: an MFS Flowchart for participants to be walked through by field staff at the MFS waiting areas, seven (7) job aids (for manual listing and survey census team, MFS reception, enrollment, clinical officers & radiographer, Lab) to assist field teams ensure adherence to survey process manual and protocol, additional MFS signage (enrollment and waiting area), certificates and badges for community staff/aides, and updated MFS invitation cards. Some of the additional materials developed are shown below.

Diani retreat, August 2016: held to congratulate all field teams for all their effort in the field. The taskforce is currently reviewing and cleaning data and a final draft report of the survey is expected by end of 2016.

Report writing process September – December 2016: The communications team supported proper documentation of the survey and were involved in reviewing, design and final layout of the final report and development of key findings and call to action.

2.7.2 World TB Day 2016

On March 24, 2016, the Ministry of Health and other TB control partners commemorated the World Tuberculosis (TB) Day at a Stakeholders' breakfast in Nairobi. Political leaders, health professionals, development partners, county government representatives, students and media alike were in attendance to show their commitment and support towards eliminating TB in Kenya. The commemoration marked the launch of the national 'MulikaTB! MalizaTB! Campaign, through a symbolic



flag off of 10 torches from Uhuru Park to 10 high TB burden counties. Respective county health departments and health management teams received these torches and their presence in the counties aimed to enhance the screening, diagnosis and treatment of TB.

Post World TB Day commemoration review meeting: The meeting brought together partners who had supported and participated in the planning of the event with a purpose to review the successes and challenges of the event and that will inform planning for WTBD 2017. The Head of TB program Dr. Enos Masini in the opening remarks appreciated the efforts and contributions of all the member and partners. He noted that the PS Health, Dr. Nicholas Muraguri was impressed with the event and termed it as the best TB commemoration he has attended. The following were the achievements and highlights of the commemorations.

**“Partnership produces great results
as witnessed during World TB day
commemoration 2016”
Dr. Enos Masini, Head TB Program**

- Advocacy meeting with counties – NTLD hosted a one day meeting with county representatives of the 10 high TB burden counties to share on the status of TB in the country and specifically for the 10 counties. The objective of the meeting was to bring to their attention the need to prioritize support for TB activities in the counties to complement the efforts of the national program to reduce the burden of TB. The representatives were the County Executives Health, County Directors of health and CTLCs.
- Health care worker testing for TB- This was conducted in the 10 high burden counties as a

build-up activity towards World TB Day 2016 in a bid to increase awareness among the health care workers in addition to active case finding.

- Mulika TB, Maliza TB campaign – Kenya is still missing approximately 20% of new TB cases annually and hence the campaign ‘Mulika TB, Maliza TB’ to put more focus and effort and use innovation for active case finding at the health facility so as to reach all missed new TB cases. The program in partnership with G4S flagged off 10 vehicles that would deliver TB torches to the 10 high burden counties to symbolize their commitment to eliminate TB. The event was held at Uhuru park grounds. The torches will be received at the county at a ceremony to be attended by the CEC, CTLC, CDH and community members to raise awareness on TB control, treatment and prevention and will tour the health facilities with the message of active case finding the missing new TB cases.

- Media & printing – Various partners supported in the procurement of various merchandise including PATH procuring World TB Day banners for the event, Commercial Bank of Africa (CBA) that gave pilot shirts, AHF who provided t-shirts and NTLD that produced posters and media kit folders. TB-ARC communication team supported in the development of the posters and media kit artworks. The team mobilized for media coverage during the main event on March 24th where over 40 journalists were in attendance. Media pieces were covered on various TV, Radio stations and print. In addition, there was social media activation by NTLD-P and her partners where messages were shared pre, during and post-world TB day.

- WTBD 2016 breakfast meeting – TB-ARC supported the breakfast meeting at Panafric Hotel attended by about 400 participants and graced by the PS, Ministry of Health Dr Nicholas

Muraguri. The Kenya Prisons Band provided entertainment at the breakfast meeting and led the march to launch the 'Mulika TB Maliza TB' campaign at Uhuru Park and an artist Steve Otieno who has sang a TB song.



2.7.3 Launch of child-friendly TB medicines

The Ministry of Health on Tuesday, September 27, 2016 announced the launch of appropriately dosed, child-friendly tuberculosis (TB) medicines, making Kenya the first country in the world to roll out these products nationally. The launch organised under the theme 'A TB Free Generation' attracted health practitioners and TB control partners including County Executives Committees (CEC) for Health from various counties in the country. The improved medicines are easier for caregivers to give and

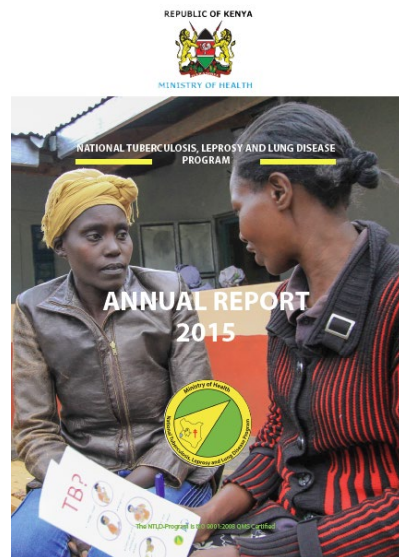


for children to take, and are expected to help improve treatment and child survival from TB. Previously, caregivers had to cut or crush multiple, bitter-tasting pills in an attempt to achieve the right doses for children. This made the six-month treatment journey difficult for children and their families, contributing to treatment failure and death from the disease. "The children TB treatment regimen comprised of multiple pills of different formulations. This was a very complex regimen for health care workers and care givers, leading to poor adherence and poor health

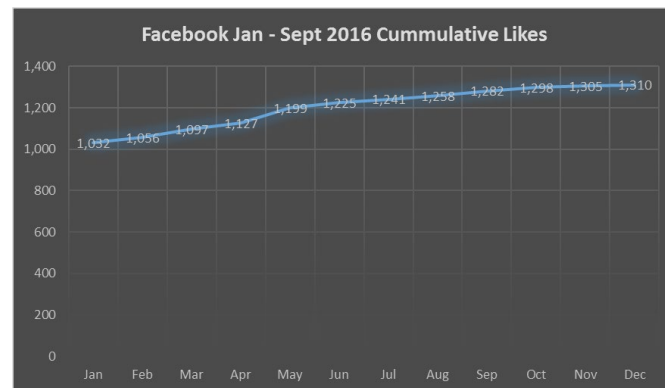
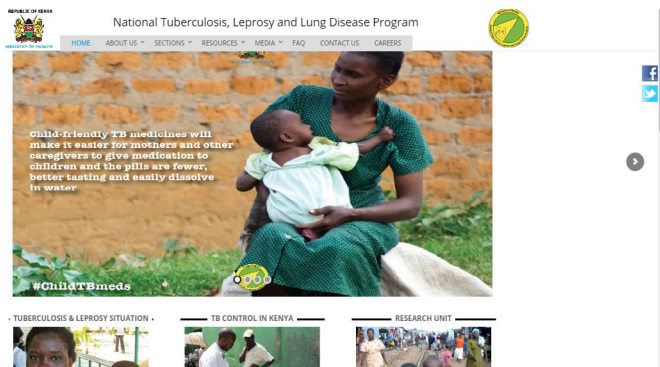
outcomes,” said Dr Kioko. The treatment being introduced was the first to meet WHO guidelines for childhood TB treatment. They are not new drugs but improved formulations that come in the correct doses, require fewer pills, are flavoured and dissolve in water. The development of the medicines was overseen by TB Alliance, an international not-for-profit organization, and was funded by UNITAID and other partners

2.7.4. Digital mediums

Photography and videography: a specialized firm, Original Images was hired to do professional photography and videography that would eventually be used in NTLD documentaries, website, social media and publications. The firm documented various TB activities in three (3) counties Nairobi, Machakos and Kajiado and further did photo and video work highlighting the prevalence survey stages and the different activities that took place in each stage of the survey. This will form part of the NTLD-Program image and motion database.



One of the photos by Original Images in use on the NTLD Program 2015 Annual Report



Website upgrading: The revamped website was successfully launched and the web developers conducted several trainings in order to build the capacity of the relevant staff at the NTLD Program to ensure smooth running of the site, frequent clean ups and regular update of the content on the website.

Social media (Facebook & Twitter): The program has on-going digital engagement through the various digital social media handles whose update is guided by the existing social media strategy. The below table shows the progress the Facebook page has made in terms of likes over the last couple of months since January to December, 2016. Social media has raised the program's visibility, increase awareness of TB, World TB Day and its accompanying Mulika TB! Maliza TB! Campaign.

2.7.5 Media engagement & coverage

TB program continued to receive substantial media coverage in the year 2016. Majority of story angles and ideas were pushed through the program and with support of a Global Fund media grant, journalists were facilitate to visit the field to compile human interest stories during the TB prevalence survey to interview participants, field teams and taskforce members. Four (4) journalists were given special assignments to collect TB-related human-interest stories from the community in Nairobi, Machakos, Migori, Homa Bay, Kisii and Nyamira counties. They conducted interviews with NTLD-Program team, County TB team and TB patient champions. It has been noted however, that media coverage of TB information often consists of a number of inaccuracies. Journalist were requested to write a review on their experiences in health reporting.

The Kenya Television Station (KTS) that was aired in April and May 2016 did a documentary. The documentary focuses on TB from a community perspective, how it affects people from different walks of life and highlights the role the national government is playing to reduce the burden of TB disease by providing high quality free TB diagnosis and treatment as well as research and development for new technologies and effective medication.

The below are some of the print media coverage received in 2016. The Program also received significant TV and Radio coverage by way of interviews and spots.



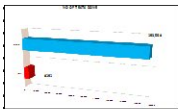

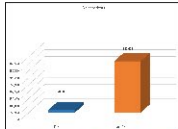

	Media Monitoring of TB Stories		
	Media Chanel	2016 Date	Title & Journalist
1	The Standard	January	More TB vaccines imported, Ally Jamah
2	The Star	March	3.4 Million doses of TB vaccines flown to end shortage, John Muchangi
3	Daily Nation	April	Hospital isolates patients with drug-resistant TB, Anthony Gitonga
4	The Standard	April	Expert fears rise in TB as more cases reported
5	Daily Nation	May	New test and shorter treatment for complicated TB, Joy Wanja Muraya
6	Daily Nation	May	State outlaws prison isolation of infectious disease patients, Patrick Kibet
7	The Star	May	Cheaper treatment for drugs-resistant TB, John Muchangi
8	The Standard	June	March held against plan to change status of Center in Isiolo
9	Daily Nation	June	Lobby threatens demo in row over TB center, Isiolo, Vivian Jebet

10	The Standard	July	Joy as patient recovers from rare TB strain, Lucas Ngasike
11	Daily Nation	July	Mombase tops list with most TB cases, Verah Okeyo
12	Daily Nation	September	The lonely path to health for patients suffering from drug-resistant TB, Kiundu Waweru
13	Daily Nation	September	Selfless volunteers lead war on killer disease
14	Daily Nation Op Ed	September	Lets have first TB-free generation across Africa, Dr. Jackson Kioko
15	The Standard	September	Child TB deaths set to fall as Kenya launches new drugs, Reuters
16	The Star	September	Child friendly TB drugs from October, Rhoda Odhiambo
17	The Standard	October	Putting an end to child TB, Maureen Odiwuor
18	MileleFM Radio	November	Patrick Mutisya
19	The Standard	November	Poor statistics hinder war on TB, Hezron Ochiel
20	The Standard	November	He had heart disease, but treated for TB, Isaiah Gwengi,

REPUBLIC OF KENYA



MINISTRY OF HEALTH

No	Item	Before Jubilee (as at June 2013)	Under Jubilee (as at June 2016)	Progress Achieved (Additional)	The Socio-economic Impact	Cost (Ksh)
NTLD Program						
(a)	Procurement of Gene Xpert machines for diagnosis of TB	3 machines	123 Machines	  <p>50 machines expected by end of 2016</p>	<ol style="list-style-type: none"> 1. Reduced turnaround time for diagnosis of drug resistant TB from 3 months to 2 days. 2. Equitable distribution of Gene Xperts in all 47 counties. 3. Increase access to high quality diagnosis using the latest technology. <ol style="list-style-type: none"> a) Reduced cost of transport to distant facilities. b) Reduced disease transmission. 4. Reduced number of hospital admissions. 	563,340,000(machines) 193,568,000(cartridges)
(b)	Isoniazid Preventive Therapy for PWAs	20,000 pills ts	368,052 pills ts	 <p>Target is 900,000 by Dec 2016</p> 	<ol style="list-style-type: none"> 5. Reduced TB/HIV co-infection from 38% to 33%. 	159,360,000



***These are some [not all] of the coverage the program received in print in 2016**

2.7.6 Events and publications communications support

Health Summit: Over the last few months in 2016 H.E. President Uhuru Kenyatta has held several summits at State House to engage his line ministries on the successes and challenges faced. On Tuesday, September 13, 2016, the 5th State House Summit focused on Health, dubbed Transforming Healthcare Kenya. To prepare for this summit, the Program developed two outputs for sharing by the CS, Dr. Cleopa Mailu. This included a milestone chart and a 2-min video what it takes to achieve Zero TB in Kenya. See below attachments for this.

47th union world conference on lung health, Liverpool, UK: Supported the preparation for program officer's presentations including developing the NTLD Presentation template and Head of program's TB Ethics and Rights presentation.

Development of the TB patient charter: the patient charter was designed with illustrations, text bubbles and narratives that describe the rights and responsibilities of TB patients in Kenya. The design is attractive, easy to read and the statements translated into Kiswahili to reach a wide range of audiences. The patient charter for Tuberculosis Care is adopted from WHO and practices the principle of Greater Involvement of People with Tuberculosis (GIPT). 1000 copies of AO size poster were printed on a washable satin material that is durable. The posters were distributed to health facility TB clinics and TB waiting areas to educate and sensitize the public on their rights and responsibilities.

2.8: Trainings Conducted

S/ No	Target	Type of training /Capacity building	Number of participants	Source of funding
1	Nutritionists	TOTs trained and certified to train other health care workers on nutritional Management of TB patients	97	Global Fund/Amref Health Africa
2	Nutritionists	Nutritional Management of TB patients	684	Global Fund/Amref Health Africa
3	CHEWs	Community based TB care	2518	Global Fund/Amref Health Africa
4	CHVs	Community based TB care	3040	Global Fund/Amref Health Africa
5	Prison Officers/ HCWs	Comprehensive service package (TB screening upon entry to prisons, provide health education and management of TB patients)	436	JICA
6	CMLC	Training on reporting system	47	JICA

7	CMLC	To strengthen capacity of CMLC for laboratory management, QA, bacteriological examination, planning of the training and operational research in TB control	55	JICA
8	SCMLT	Capacity building for SCMLTs regarding laboratory management and bacteriological examination in TB control.	287	JICA
9	MLT	Training for fluorescence based AFB smear microscopy	100	JICA
10	SCMLT	To practice for conducting OJT and to brush-up FM method.	73	JICA
11	First Controller	To taring for EQA (Blinded Rechecking)	46	JICA
12	Second Controller	Ditto	42	JICA
13	Laboratory Manager	Laboratory management and QA in TB control	36	JICA

14	CTLC/ SCTLC	Training for EQA (Blinded Rechecking) especially LQAS method	17	JICA
15	HCWs	Management trainings (KSG-Local)	20	Global Fund
16	HCWs	Management Trainings (foreign)	5	Global Fund
17	HCWs	Workshop/Conferences	11	GF/TBARC /CDC
18	HCWs	QMS Internal Audit (ISO 9001:2008)	7	TB ARC
19	HCWs	QMS Lead Auditor (ISO 9001:2008)	4	TB ARC
20	HCWs	AFB Refresher	82	Global Fund
21	HCWs	ICD_10_Training	118	Global Fund
22	HCWs	MOVE_IT_Training	28	Global Fund
23	HCWs	Paediatric TB Training	62	Global Fund
24	HCWs	TOT_FOR_ICD10	30	Global Fund
25	HCWs	Training in electronic reporting	52	Global Fund
26	HCWs	Presumptive TB register	110	TBARC/Amref Health Africa

27	HCWs	Prevalence survey field sta training on manual and protocol	75	Global Fund
28	HCWs	TB case management to the County Pharmacists	47	TB ARC
29	HCWs	DR TB training	125	Global Fund
30	HCWs	TB/HIV	150	CDC/GF
31	HCWs	IPT Sensitization	200	TB ARC/CDC
32	HCWs	GeneXpert Super User	34	TB ARC

CHAPTER 3: MONITORING, EVALUATION, RESEARCH AND INNOVATION

The year 2016 had commendable activities in monitoring, evaluation and research which geared towards the below two areas of focus:

3.1: Up take of new tools and Technologies

The National TB, Leprosy and Lung disease program continues to record and report TB and Leprosy cases on an electronic platform TIBU. In the year 2016 the programs managed to review the electronic system to better improve data collected, from implementation phase 2 to phase 3 (see below diagram). This growth took into account adaption of WHO new definitions. Manual tools were also revised during the year to include new definitions and co- morbidities like

diabetes that have been proven to have a relation with TB from documented studies. There was introduction of the presumptive TB register in identified counties that would aid in recording and reporting of TB active case finding.

Phase 3

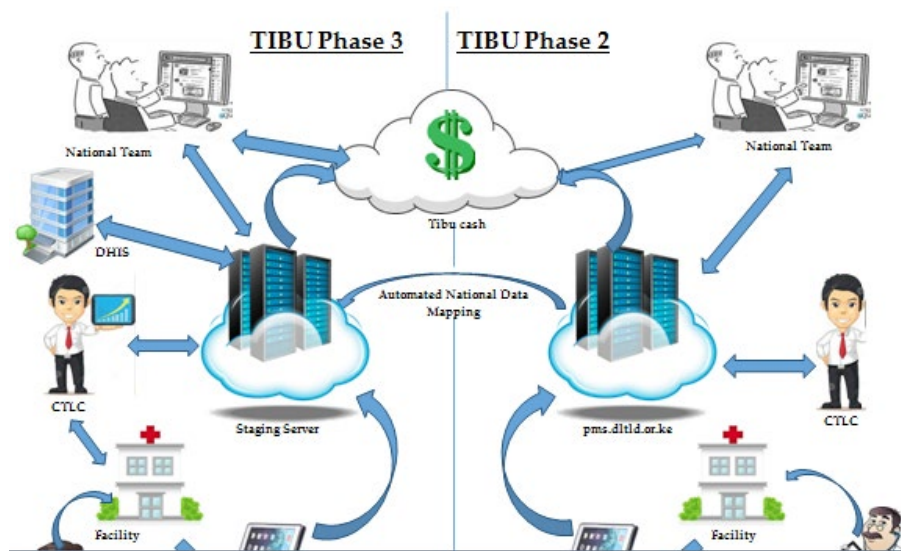


Figure 17: TIBU Phase 3 / TIBU Phase 2 operation

Data collected from the system was further analyzed by program officers and results disseminated in various forums e.g. the 47th lung health conference held in Liverpool. Some of the abstracts presented were:

1. Performance of TST and QFT for LTBI screening during pregnancy and postpartum in HIV infected Kenyan women
2. High treatment success in children treated for multidrug-resistant tuberculosis in Kenya: a retrospective evaluation
3. Predictors of tuberculosis recurrence in adult patients treated in Nyanza Region, Kenya
4. Finding the missing 20%: active TB case finding through engagement of private health care providers in Mombasa County, Kenya
5. Aligning TB control activities to the devolved system of governance in Kenya
6. How risky are the innovative strategies that involve community health volunteers in sputum sample collection, packaging and transportation in Mombasa, Kenya?
7. Predictors of tuberculosis treatment outcomes in Kakuma Refugee Camp, Kenya, 2015
8. Community-based tracing of contacts to improve tuberculosis screening and uptake of isoniazid preventive therapy among children
9. Unravelling TB drug resistance in Kenya
10. Assessment of TB performance indicators: a comparison of public and private health sectors in Kenya
11. Characteristics and treatment outcomes of extra-pulmonary tuberculosis patients in Kenya
12. Improving detection of tuberculosis through active case finding among children attending informal settlements in Nairobi

13. Comparison of characteristics of extra-pulmonary and pulmonary tuberculosis cases in Kenya, 2011-2015: retrospective study
14. High treatment success in patients started on multidrug-resistant tuberculosis treatment in Kenya
15. Risk factors for tuberculosis going beyond HIV: a case control study in Western Kenya

3.2: Impact assessment; prevalence survey and others

The year 2016 marked the end of data collection of an historic event, the nationwide TB prevalence survey. The survey aims at measuring the actual TB burden in Kenya by giving TB prevalence per 100,000 populations. By the end of 2016, the survey data collection had been completed and report writing process begun. At the close of the year, a draft 1 report was ready that showed indications of a high TB burden in Kenya. The team continues to conclude on the report with a target of disseminating the final report on world TB Day 2017.

The survey was made successful by support of various partners including Global Fund providing 75% of the funding, USAID supporting 25% of the funding and offering 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.

Operation research is among small impact assessments that were carried out in 2016. The program has engaged in capacity building field staff in operation research in previous years. In 2016, trained staff engaged in drafting protocols among them contribution of community health workers in TB control, factors associated with adherence to TB treatment among adult TB patients in Kenya, Data Quality Assurance, among others. Towards the end of the year data collection had been done and process is ongoing for report finalization.

The program conducted a data quality assessment in 12 counties; Baringo, Bomet, Bungoma, Isiolo, Kiambu, Kitui, Laikipia, Meru, Nyamira, Taita Taveta, Tana River and Turkana. The main findings were;

- Under-reporting of about 3% during the period under review.
- For all forms of TB with cases in TIBU and the facility register agreeing at 97%. This compares well with HIV cases indicators on ART at 97% and bacteriologically, confirmed cases at 94% level of agreement between the facility register and TIBU.
- Indicators on nutrition and referral by Community Health Volunteers (CHVs) had data consistency challenges with 113% and 116% level of agreement respectively.
- Other indicators chosen performed and, also, the utilization of the patient record card stood at 55% compared to 53% in the previous report of 2015.
- In terms of use of standard recording and reporting tools; 61% of the facilities reported having all the tools while 39% were found to be lacking the revised tools and were therefore using older versions or missing certain tools.
- Confidentiality was generally observed in most health facilities as records were stored under lock and key, however, some health facilities were lacking lockable drawers.

3.3: Operational research (OR)

The following two OR topics were launched and accomplished by the end of 2016.

OR1. Evaluation of sample size for blinded rechecking on AFB microscopy

OR2. Comparative evaluation of sputum collection for TB diagnosis between spot-spot and spot-morning sputum collection

OR1 results showed the new sample size defined county-wise by using sensitivity to controllers 80% to detect more errors than the sample size defined country-wise by using sensitivity 75%. Based on this finding, SOP of blinded rechecking is going to be revised.

OR2 results showed spot-spot sputum collection missed around 5% of TB cases in comparison to spot-morning. However, spot-spot method is recorded to have more benefits to patients in terms of saving cash and opportunity cost which were major causes for default in TB diagnosis. The 5% missed TB cases could be covered by clinical consideration, chest-x ray and/or other diagnostic ways.

CHAPTER 4.0: TRAININGS, ADMINISTRATION /FINANCE

4.1: Trainings Conducted

No	Target	Type of training	Number of participants	Source of Funds
1	Nutritionists	TOTs trained and certified to train other health care workers on nutritional Management of TB patients	97	Global Fund
2	Nutritionists	Training of health care workers (implementers) on nutritional Management of TB patients	684	Global Fund
3	CHEWs	Training on Community based TB care	2518	Global Fund
4	CHVs	Training on Community based TB care	3040	Global Fund
5	Prison Officers/ HCWs	Training of prison wardens and HCWs on a comprehensive service package (TB screening upon entry to prisons, provide health education and management of TB patients	436	JICA
6	CMLC	Training on reporting system	47	JICA

7	CMLC	To strengthen capacity of CMLC for laboratory management, QA, bacteriological examination, planning of the training and operational research in TB control	55	JICA
8	SCMLT	Capacity building for SCMLTs regarding laboratory management and bacteriological examination in TB control.	287	JICA
9	MLT	Training for fluorescence based AFB smear microscopy	100	JICA
10	SCMLT	To practice for conducting OJT and to brush-up FM method.	73	JICA
11	First Controller	To taring for EQA (Blinded Rechecking)	46	JICA
12	Second Controller	Ditto	42	JICA
13	Laboratory Manager	Laboratory management and QA in TB control	36	JICA
14	CTLC/ SCTLC	Training for EQA (Blinded Rechecking) especially LQAS method	17	JICA

4.1: Finance and Administration

During the year under review, the NTLD-Program had a staff establishment of 65 mostly seconded by the Government. The NTLD-Program had 53 technical staff, 12 Global Fund project staff, five (5) staff seconded to the Program by TB ARC, four (4) support staff and nine (9) drivers. The Global Fund Project supported 152 Feld staff in different cadres: Clinical officers (48) and Laboratory Technologists (111). 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).

Table 9: Fund allocation under JICA

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

The Government allocated KES 440 Million to the NTLD-Program for key TB commodities during the FY 2016/2017. 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

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 2016:

Table 14: Internship opportunities

S/No	Area of Study	Section Attached	Number
1	Environmental Health and Public Health	Prevention and Health Promotion	5
2	ICT	Monitoring & Evaluation	1
3	Laboratory	Care and Support	3
4	Commodity	Leprosy	0
Total			9

Table 15: Performance review meetings

Type of meetings	Planned meeting	No. of meetings held
Staff	12	11
Top management /section	12	6
TB ICC	4	2
Quarterly	4	4
Bi-annual	2	2

Table 16: QMS Activities

S/No	Activity	Planned trainings	No. trainings done
1	Internal Quality Audits	4	2
2	Workshop to review of QMS documents	1	0
3	Training of internal Auditors	7	0
4	Training of Lead Auditors	4	0
5	Sensitization of NTLD-Program officers	2	0

CHAPTER 5: ANNEXES; COUNTY PROFILES

	Kenya
Population	44,156,577
Urban Population	29.9%
Population Density	76
Proportion of Males	49.5%
Proportion of children <14	41.6%
Proportion of elderly >65	3.3%
HIV Prevalence	5.9%
Poverty Headcount	46



Table 2: Service delivery at national level

	Kenya
TB CNR	170
Number of TB Control zones	293
Diagnostic /100,000	6
Treatment/100,000	9
Proportion accessing diagnostic at initial seeking	45%
Proportion accessing treatment at initial seeking	45%
Number of Xpert sites	134
No of ART sites	3235
DR TB treatment sites	308

Table 3: TB case finding Trends

Type of TB	2014	2015	2016
Bacteriologically confirmed	39,756 (45%)	34,926 (43%)	44,006 (58%)
Clinically diagnosed	49,537 (55%)	38,799 (48%)	31,894 (42%)
Previously treated	8,804 (10%)	6,970 (9%)	4,767 (6%)
EPTB	15,762 (18%)	14,418 (18%)	13,180 (18%)
TB among children < 15 (all forms)	8,477 (9.4%)	6,962 (8.5%)	6,962 (8.5%)
Total	89,293	81,566	75,896

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
% tested for HIV	96%	97%	96%
TB/HIV co-infection rate	35%	33%	31%
CPT Uptake	99%	99.5%	98.6%
ART Uptake	90%	96%	95%
IPT % among under fives	1.6%	4.5%	10.9%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTFU (%)	Death (%)	TO (%)
Bacterio- logically confirmed	91	0.5	5	3	2.3
Clinically dx	88	-	4	8	2
Previously treated	82	1.1	8	9	2.4

EPTB	88	-	4	9	2.2
Total(All TB cases)	87	0.5	5	6	2.1
DRTB (2014)	74	1	6	17	2

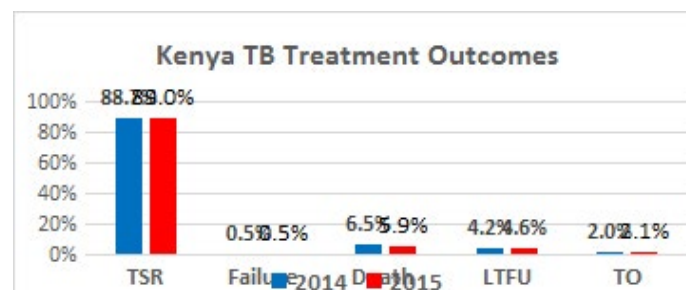
**Figure 1: Treatment Outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	5771	13285	19056
BMI <18.5	6464	13576	20040
% BMI <16 and given food support	2856 (49%)	4587 (35%)	7443 (39%)
% BMI <18.5 and given food support	2479 38%	3777 (28%)	6256 (31%)

Table 7: Trends in DRTB patients reported

Resistance Pattern	2014	2015	2016
Mono-resistant	27	64	86
*RR	264	361	351
PDR	15	24	8
Total	306	449	445

BOMET COUNTY

	County	Kenya
Population	846,012	44,200,000
Urban Population	1.7%	29.9%
Population Density	415	76
Proportion of Males	49.7%	49.5%
Proportion of children <14	46.5%	41.6%
Proportion of elderly >65	3.1%	3.3%
HIV Prevalence	2.5%	5.9%
Poverty Headcount	46%	46%

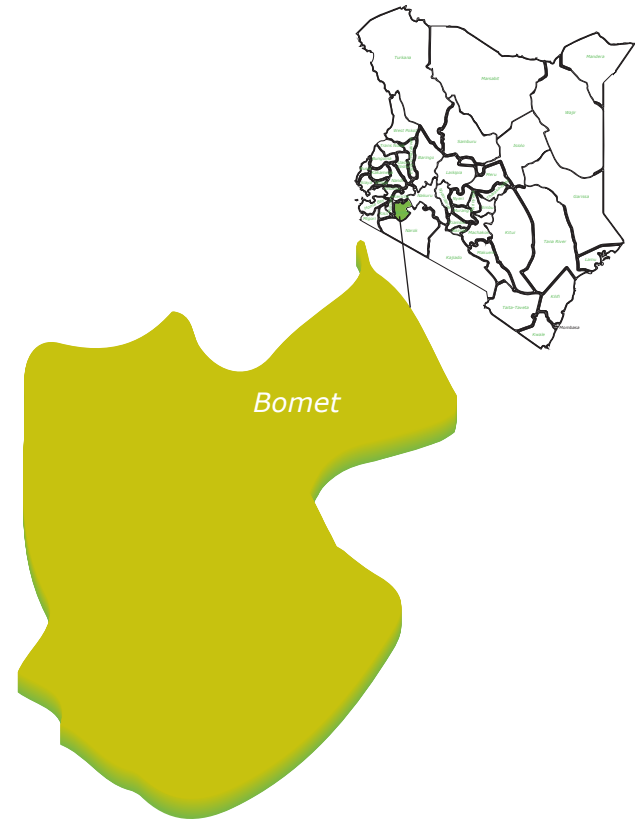


Table 2: Service delivery per county versus national

TB CNR	147	170
Number of TB Control zones	5	293
Proportion accessing diagnostic at initial seeking	23%	45%
Proportion accessing treatment at initial seeking	33%	45%
Number of AFB Sites	30	2178
Number of Xpert sites	2	134
No of ART sites	81	3235
DR TB treatment sites	11	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
New Bacteriologically confirmed	645 (37%)	625 (43%)	657 (50%)
New Clinically diagnosed	685 (39%)	465 (32%)	369 (28%)
Previously treated	74 (4%)	118 (8%)	37 (3%)
EPTB	350 (20%)	326 (22%)	260 (20%)
TB among children < 15 (all forms)	208 (12%)	134 (9%)	117 (9%)
Total	1754	1460	1323

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1656	1419	1246
TB/HIV co-infection rate	24.9%	24.2%	22.6%
No on CPT	435	350	299
No on ART	387	329	287
IPT among under fives	7	9	56

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Total	89.4%	0.1%	3.4%	5.5%	1.6%
Bacteriologically confirmed	89.1%	0.2%	9.6%	3.2%	2.6%
Clinically diagnosed	92.5%	0%	1.5%	5.1%	0.85
Previously treated	77.2%	0%	4.5%	18.1%	0%
EPTB	87.1%	0%	3.1%	8.56%	1.22%

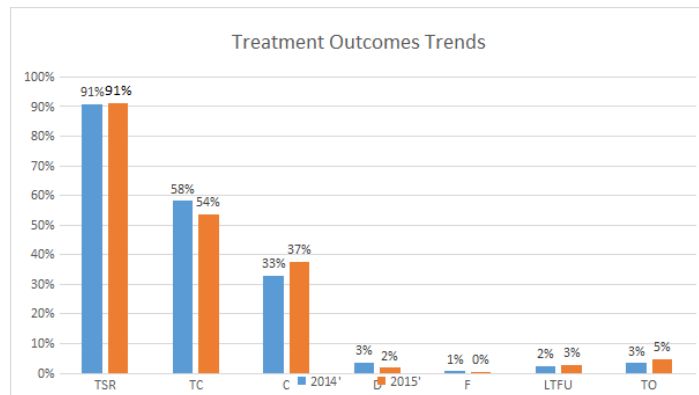


Figure 2: Treatment Outcome trends

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	79	237	316
BMI <18.5	88	293	381
BMI <16 and given food support	38	73	111

BMI <18.5 and given food support	30	101	131
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Table 7: Trends in DRTB patients reported

Resistance Patterns	2014	2015	2016
Mono-resistant	1	0	0
RR	0	5	2
PDR	0	1	0
Total	1	6	2

*RR includes MDR, XDR and Pre XDR

BUNGOMA COUNTY

	Bungoma	Kenya
Population	1,526,655	44,156,576
Urban Population	22%	29.9%
Population Density	515	75
Proportion of Males	49%	49.6%
Proportion of children <15	48%	42%
Proportion of elderly >65	3%	3.3%
HIV Prevalence	2.8%	6.04%
Poverty Headcount	52	46

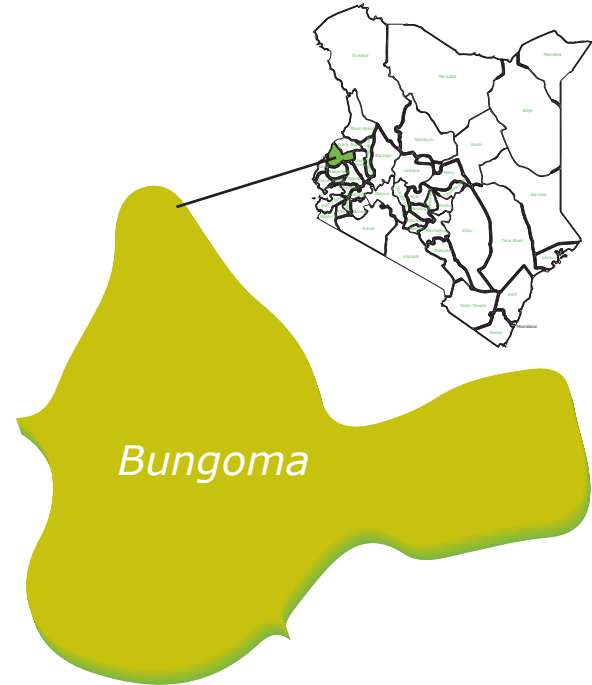


Table 2: Service delivery per county versus national

	Bungoma	Kenya
TB CNR	119	170
Number of TB Control zones	10	290
Proportion accessing diagnostic at initial seeking	53%	45%
Proportion accessing treatment at initial seeking	52%	45%
Number of AFB sites	103	2436
Number of Xpert sites	3	134
Number of ART sites	101	3235
DR TB treatment sites		

Table 3: TB case finding trends

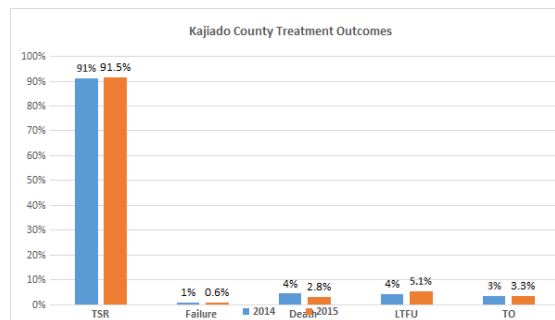
Type of TB	2014	2015	2016
Bacteriologically confirmed	748 (40%)	716 (47%)	1024 (55%)
Clinically diagnosed	1111 (60%)	797 (53%)	834 (45%)
Previously treated	196 (11%)	142 (9%)	160 (9%)
EPTB	245 (13%)	331 (22%)	315 (17%)
TB among children < 15 (all forms)	219 (12%)	172(11%)	189(10%)
Total	1859	1513	1858

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
% tested for HIV	97%	98%	97%
TB/HIV co-infection rate	35%	32%	30%
CPT Uptake	100%	100%	99.6%
ART Uptake	96%	98%	96%
IPT % among under fives	2.3%	1.9%	2.7%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	88.7%	0.6%	4.7%	5.4%	0.3%
Clinically diagnosed	85.3%	0%	2.6%	11.9%	0%
Previously treated	74%	0%	9%	16%	0%
EPTB	85%	0%	3.3%	12%	0%
Total	87%	0.3%	3.6%	8.9%	0.1%

**Table 6: BMI categorization and food support given to TB patients**

	HIV+	HIV -	Total
BMI <16	87	138	231
BMI <18.5	161	327	498
BMI <16 and given food support	53	69	126
BMI <18.5 and given food support	59	73	135

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	2	8
*RR	4	3	2
PDR	0	0	0
Total	4	5	10

*** RR includes 6 MDRs in 2014 and 2015**

BUSIA COUNTY

	Busia	Kenya
Population	825,921	44,156,576
Urban Population	16%	29.9%
Population Density	488	75
Proportion of Males	48%	49.6%
Proportion of children <15	48%	42%
Proportion of elderly >65	3.7%	3.3%
HIV Prevalence	6.7%	6.04%
Poverty Headcount	65	46

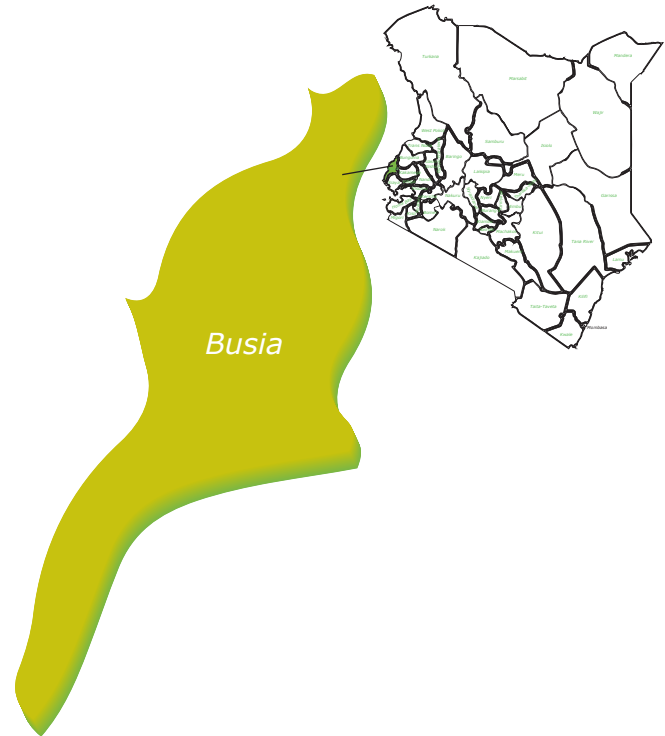


Table 2: Service delivery per county versus national

	Busia	Kenya
TB CNR	112	170
Number of TB Control zones	7	290
Proportion accessing diagnostic at initial seeking	53%	45%
Proportion accessing treatment at initial seeking	55%	45%
Number of AFB sites	56	2436
Number of Xpert sites	4	134
Number of ART sites	81	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacteriologically confirmed	565(37%)	470(40%)	480(51%)
Clinically diagnosed	968(63%)	717(60%)	461(49%)
Previously treated	222(14%)	139(12%)	76(8%)
EPTB	281(18%)	213(18%)	146(16%)
TB among children < 15 (all forms)	203(13%)	112(9%)	95(10%)
Total	1533	1187	941

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
% tested for HIV	97%	99%	96.5%
TB/HIV co-infection rate	48%	46%	45%
CPT Uptake	99.6%	99.5%	98.8%
ART Uptake	96%	98.9%	98.5%
IPT % among under fives	3.6%	2.3%	1.9%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	86.6%	1.7%	4.0%	6.6%	1.1%

Clinically diagnosed	84.7%	0.1%	3.6%	11.3%	0.3%
Previously treated	84%	1.4%	2.9%	10.8%	0.7%
EPTB	82.6%	0%	4.7%	12.7%	0%
Total	85%	0.8%	3.8%	9.4%	0.6%

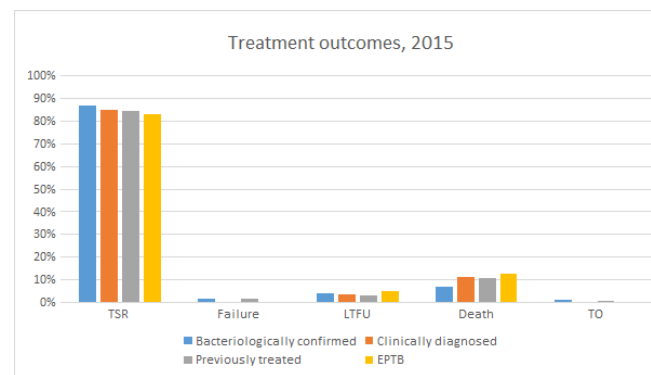
**Figure 4: Treatment outcomes**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	71	63	135
BMI <18.5	127	120	252
BMI <16 and given food support	43	35	78
BMI <18.5 and given food support	56	44	102

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	2	5
*RR	1	2	3
PDR	1	1	1
MDR	1	1	2
Total	2	5	9

*** RR includes 4 MDRs in 2014, 2015 and 2016**

ELGEYO MARAKWET COUNTY

	County	Kenya
Population	452,360	44,156,577
Urban Population	14%	29.9%
Population Density	149	76
Proportion of Males	49.6%	49.6%
Proportion of children <14	44.1%	41.6%
Proportion of elderly >65	3.6%	3.3%
HIV Prevalence	1.9%	5.6%
Poverty Headcount	55	46



Table 2: Service delivery per county versus national

		Kenya
TB CNR	112	170
Number of TB Control zones	4	293
Diagnostic /100,000	6	4
Treatment/100,000	7	7
Proportion accessing diagnostic at initial seeking	58%	45%
Proportion accessing treatment at initial seeking	42%	45%
Number of Xpert sites	1	134
No of ART sites	30	3,235
DR TB treatment sites	4	606

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacteriologically confirmed	243(47%)	279(56%)	282(55%)
Clinically diagnosed	279(53%)	223(44%)	228(45%)
Previously treated	35(7%)	27(5%)	24(5%)
EPTB	91(17%)	86(17%)	112(22%)
TB among children < 15 (all forms)	61(12%)	54(11%)	60(12%)
Total	522	502	510

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	453	481	500
TB/HIV co-infection rate	27.4%	23.7%	20.7%
No on CPT	124	113	105
No on ART	105	109	105
IPT % among under fives	0	30	44

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriological-ly confirmed	91%	0.5%	5%	3%	0.5%
Clinically diagnosed	88%	0%	2%	9%	0.5%

Previously treated	89%	0%	4%	7%	0%
EPTB	90%	0	2	7	1
Total(All forms)	90	0.2	3.6	5.8	0.4

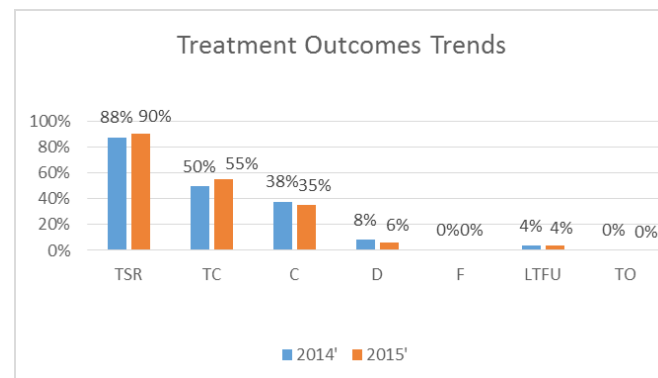
**Figure 5: Treatment Outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	23	80	105
BMI <18.5	35	126	165
BMI <16 and given food support	16	38	56
BMI <18.5 and given food support	14	44	60

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	2	1	1
*RR	1	2	1
PDR	0	0	0
Total	3	3	2

*** RR includes 4 MDRs in 2014, 2015 and 2016**

EMBU COUNTY

	County	Kenya
Population	554,079	44,156,577
Urban Population	16%	29.9%
Population Density	208	76
Proportion of Males	49.8%	49.6%
Proportion of children <14	37.5%	41.6%
Proportion of elderly >65	5.1%	3.3%
HIV Prevalence	3.3%	5.6%
Poverty Headcount	41	46

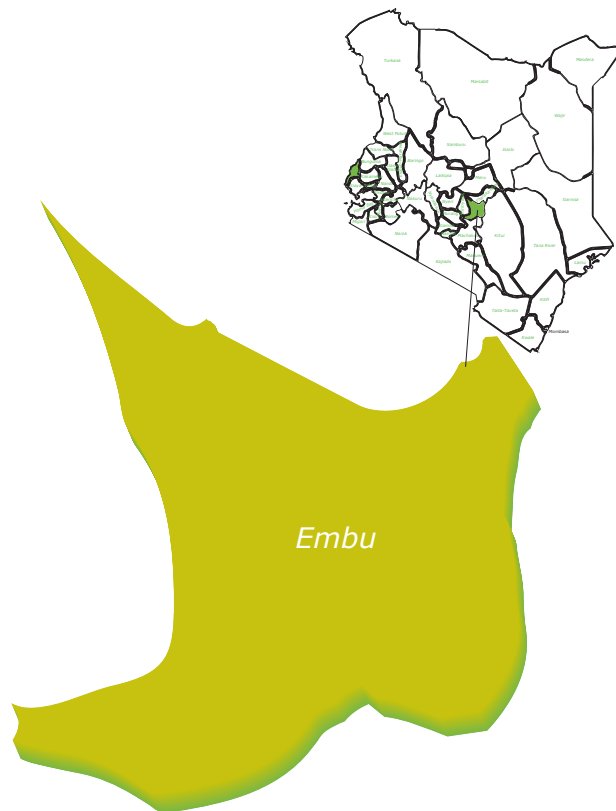


Table 2: Service delivery per county versus national

	Embu	Kenya
TB CNR	232	170
Number of TB Control zones	4	293
Diagnostic /100,000	7	4
Treatment/100,000	14	7
Proportion accessing diagnostic at initial seeking	N/A	45%
Proportion accessing treatment at initial seeking	N/A	45%
Number of Xpert sites	2	134
No of ART sites	36	3,235
DR TB treatment sites	15	606

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	662(59%)	822(64%)	802(62%)
Clinically diagnosed	701(62%)	663(51%)	497(38%)
Previously treated	103(9%)	89(7%)	56(4%)
EPTB	132(12%)	161(12%)	183(14%)
TB among children < 15 (all forms)	234(12%)	193(15%)	140(11%)
Total	1,129	1,292	1,299

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1332	1446	1,220
TB/HIV co-infection rate	22.7%	20.1%	18.9%
No on CPT	298	289	244
No on ART	280	277	242
IPT % among under fives	1	15	18

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	90%	2%	3%	4%	1%
Clinically diagnosed	88%	0%	2%	9%	1%

Previously treated	85%	1%	6%	7%	1%
EPTB	87	0	0.6	12	0.6
Total(all forms)	89	0.9	3.2	5.8	1

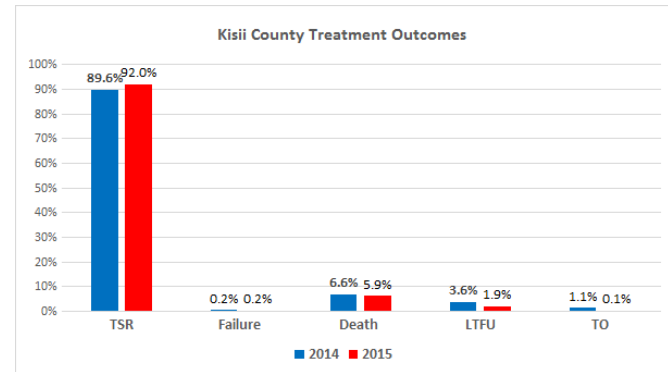
**Figure 6: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	42	123	173
BMI <18.5	59	319	397
BMI <16 and given food support	28	53	82
BMI <18.5 and given food support	20	88	108

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	3	5	8
*RR	1	3	2
PDR	0	0	0
Total	4	8	10

*** RR includes 6 MDRs in 2014, 2015 and 2016**

GARISSA COUNTY

	County	Kenya
Population	423,931	44,156,577
Urban Population	24%	29.9%
Population Density	16	76
Proportion of Males	51.3%	49.6%
Proportion of children <14	39.1%	41.6%
Proportion of elderly >65	2.9%	3.3%
HIV Prevalence	0.9%	5.6%
Poverty Headcount	55	46

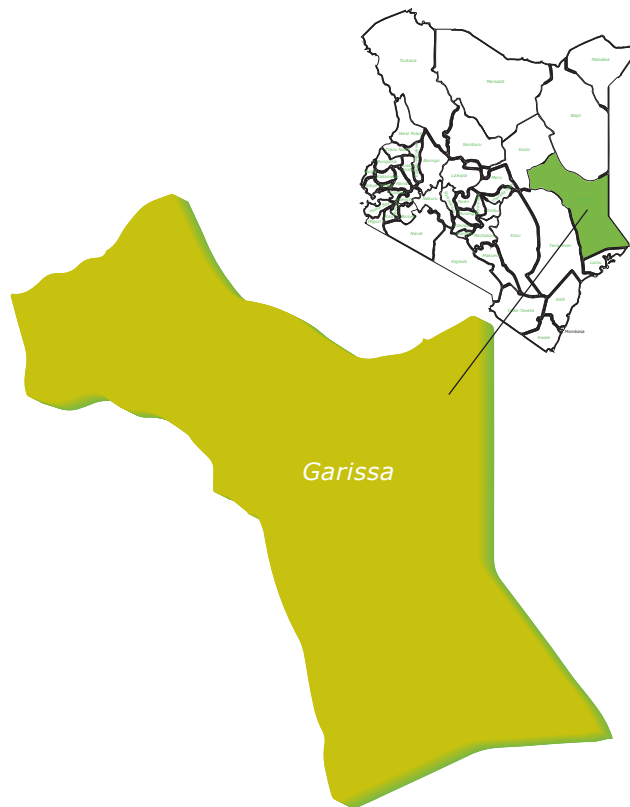


Table 2: Service delivery per county versus national

	GARISSA	KENYA
TB CNR	204	170
Number of TB Control zones	5	293
Diagnostic /100,000	5	4
Treatment/100,000	5	7
Proportion accessing diagnostic at initial seeking	21%	45%
Proportion accessing treatment at initial seeking	63%	45%
Number of Xpert sites	2	134
No of ART sites	13	3,235
DR TB treatment sites	2	606

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	467(41%)	411(49%)	460(53%)
Clinically diagnosed	679(59%)	429(51%)	408(47%)
Previously treated	85(7%)	36(4%)	47(5%)
EPTB	215(19%)	192(23%)	203(23%)
TB among children < 15 (all forms)	191(17%)	136(16%)	180(21%)
Total	1146	840	868

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1146	722	839
TB/HIV co-infection rate	3.9%	6.0%	3.8%
No on CPT	45	41	33
No on ART	47	30	32
IPT % among under fives	7	4	12

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	89%	0.5%	4%	2%	5%
Clinically diagnosed	93%	0%	1%	1%	4%

Previously treated	69%	6%	8%	3%	14%
EPTB	92.5	0	0.5	1	6
Total(all forms)	91	0.2	2.6	1.6	4.6

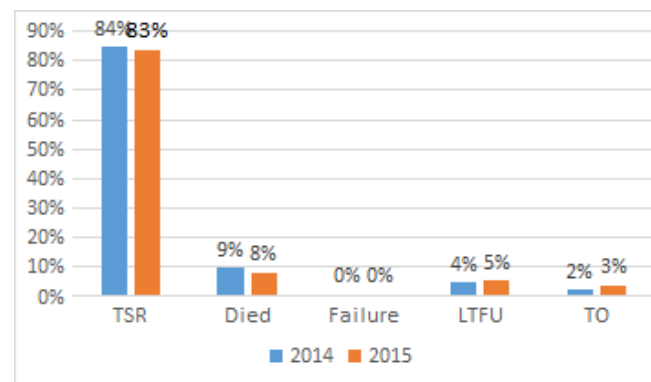
**Figure 7: Treatment Outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	10	212	227
BMI <18.5	6	172	184
BMI <16 and given food support	7	116	123
BMI <18.5 and given food support	2	71	73

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	29	3
*RR	47	40	2
PDR	0	0	0
Total	47	69	5

*** RR includes 47, 40 and 2 MDRs in 2014, 2015 and 2016 respectively**

HOMA BAY COUNTY

	County	Kenya
Population	1,101,901	44,156,577
Urban Population	14%	29.9%
Population Density	343	76
Proportion of Males	48.1%	49.6%
Proportion of children <14	47.0%	41.6%
Proportion of elderly >65	3.6%	3.3%
HIV Prevalence	25.7%	5.6%
Poverty Headcount	44	46

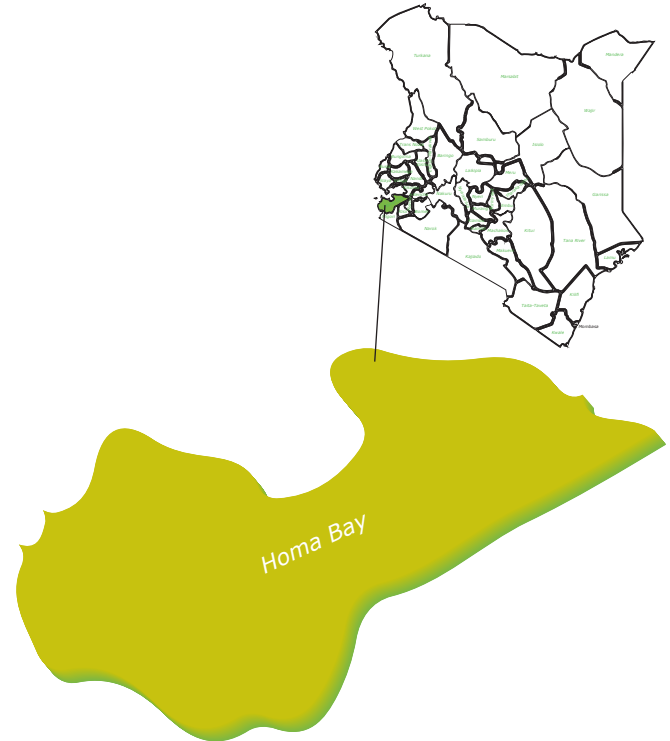


Table 2: Service delivery per county versus national

	HOMABAY	KENYA
TB CNR	178	170
Number of TB Control zones	8	293
Diagnostic /100,000	5	4
Treatment/100,000	11	7
Proportion accessing diagnostic at initial seeking	55%	45%
Proportion accessing treatment at initial seeking	51%	45%
Number of Xpert sites	5	134
No of ART sites	204	3,235
DR TB treatment sites	28	606

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	1,013(35%)	1,033(48%)	960(49%)
Clinically diagnosed	1,898(65%)	1,115(52%)	1014(51%)
Previously treated	229(8%)	145(7%)	103(5%)
EPTB	497(17%)	390(18%)	413(21%)
TB among children < 15 (all forms)	255(9%)	171(8%)	180(9%)
Total	2,909	2,148	1,969

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	2882	2146	1,967
TB/HIV co-infection rate	66.6%	69.1%	63.5%
No on CPT	1909	1481	1253
No on ART	1714	1471	1232
IPT % among under fives	54	44	84

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	86%	1%	3%	7%	3%
Clinically diagnosed	78%	0%	3%	16%	3%

Previously treated	82%	1%	1%	13%	2%
EPTB	78	0	2	16	3
Total(all forms)	82	0.5	3	12	3

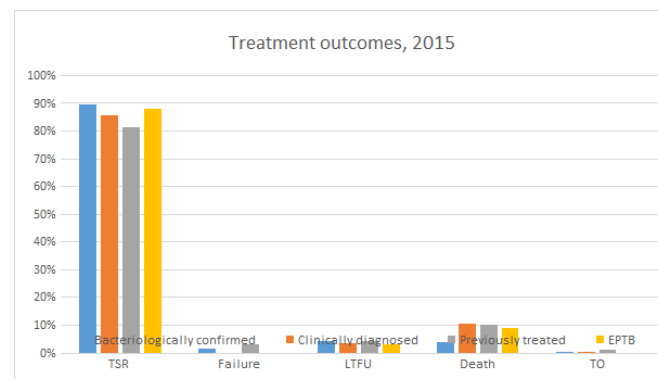
**Figure 8: Treatment Outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	211	57	268
BMI <18.5	381	170	551
BMI <16 and given food support	156	34	190
BMI <18.5 and given food support	212	89	301

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	10	8
*RR	8	5	3
PDR	1	0	0
Total	9	15	11

*** RR includes 8, 5 and 3 MDRs in 2014, 2015 and 2016 respectively**

ISIOLO COUNTY

	Isiolo	Kenya
Population	153875	44156577
Urban Population	43.5%	29.9%
Population Density	7	75
Proportion of Males	51.4%	49.7%
Proportion of children <14	44%	42%
Proportion of elderly >65	4%	3%
HIV Prevalence	3.8%	5.9%
Poverty Headcount	63	46

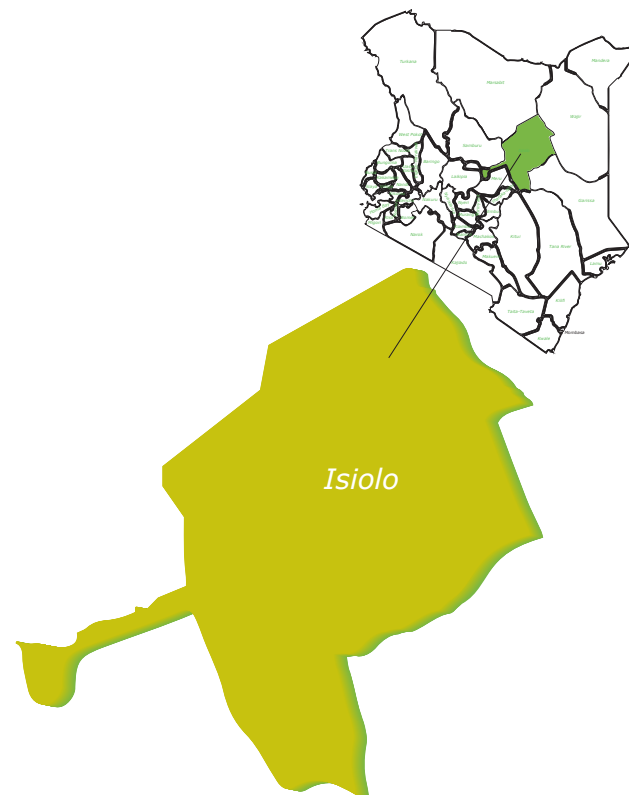


Table 2: Service delivery per county versus national

	Isiolo	Kenya
TB CNR	335	170
Number of TB Control zones	3	292
Diagnostic /100,000	6	6
Treatment/100,000	26	3671
Proportion accessing diagnostic at initial seeking	37%	45%
Proportion accessing treatment at initial seeking	46%	45%
Number of AFB sites	8	2436
Number of Xpert sites	2	134
No of ART sites	22	3235
DR TB treatment sites	3	305

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacteriologically confirmed	208 (36%)	178(33%)	285(54%)
Clinically diagnosed	373(64%)	319(59%)	240(46%)
Previously treated	58(10%)	36(7%)	28(5%)
EPTB	143(25%)	183(34%)	126(24%)
TB among children < 15 (all forms)	75(13%)	83(15%)	64(12%)
Total	581	544	525

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	567	491	502
TB/HIV co-infection rate	26%	28%	22%
No on CPT	147	136	111
No on ART	143	134	112
IPT % among under fives	5%	0	4%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	96%	0%	3%	1%	0%
Clinically diagnosed	88%		7%	5%	0%

Previously treated	81%	0%	8%	11%	0%
EPTB	87%		7%	5%	0%
Total (All cases)	91%	0%	5%	3.5%	0%

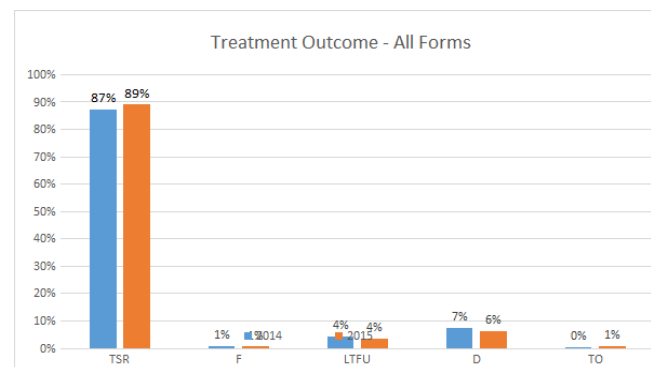
**Figure 9: Treatment Outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	50	167	217
BMI <18.5	34	96	130
BMI <16 and given food support	42	107	149
BMI <18.5 and given food support	19	50	69

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	3	1	4
*RR	1	3	1
PDR	0	0	0
Total	4	4	5

*** RR includes 4 MDRs in 2014, 2015 and 2016**

KAJIADO COUNTY

	Kajiado	Kenya
Population	840,127	44156577
Urban Population	41%	29.9%
Population Density	36	75
Proportion of Males	50.2%	49.7%
Proportion of children <14	39%	42%
Proportion of elderly >65	2%	3%
HIV Prevalence	4.7%	5.9%
Poverty Headcount	12	46



Table 2: Service delivery per county versus national

	Kajiado	Kenya
TB CNR	175	170
Number of TB Control zones	5	292
Diagnostic /100,000	5	6
Treatment/100,000	37	3671
Proportion accessing diagnostic at initial seeking	54%	45%
Proportion accessing treatment at initial seeking	42%	45%
Number of AFB sites	42	2436
Number of Xpert sites	2	134
No of ART sites	39	3235
DR TB treatment sites	4	305

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	755(46%)	699(44%)	827(55%)
Clinically diagnosed	893(54%)	786(49%)	671(45%)
Previously treated	142(9%)	109(7%)	102(7%)
EPTB	235(14%)	258(16%)	198(13%)
TB among children < 15 (all forms)	203(12%)	171(11%)	142(9%)
Total	1648	1604	1498

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1572	1546	1436
TB/HIV co-infection rate	30%	31%	31%
No on CPT	478	474	439
No on ART	415	452	415
IPT % among under fives	0	2%	3%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	92%	1%	5%	2%	4%
Clinically diagnosed	91%		5%	4%	3%

Previously treated	96%	1%	3%	0%	3%
EPTB	91%		4%	5%	4%
Total	91%	0.6%	5%	2.8%	3%

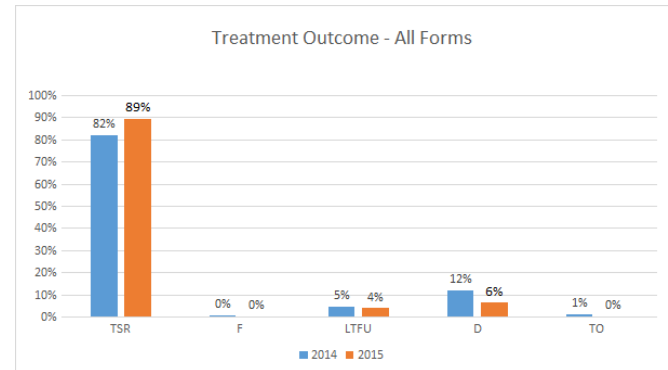
**Figure 10: Treatment Outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	114	252	366
BMI <18.5	109	267	376
BMI <16 and given food support	61	78	139
BMI <18.5 and given food support	32	53	85

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	1	2	3
*RR	5	2	5
PDR	0	0	0
Total	6	4	8

*** RR includes 5, 2 and 3 MDRs in 2014, 2015 and 2016 respectively**

KAKAMEGA COUNTY

	Kakamega	Kenya
Population	1,843,320	44156577
Urban Population	15%	29.9%
Population Density	617	75
Proportion of Males	48.2%	49.7%
Proportion of children <14	46%	42%
Proportion of elderly >65	31%	3%
HIV Prevalence	4%	5.9%
Poverty Headcount	51	46

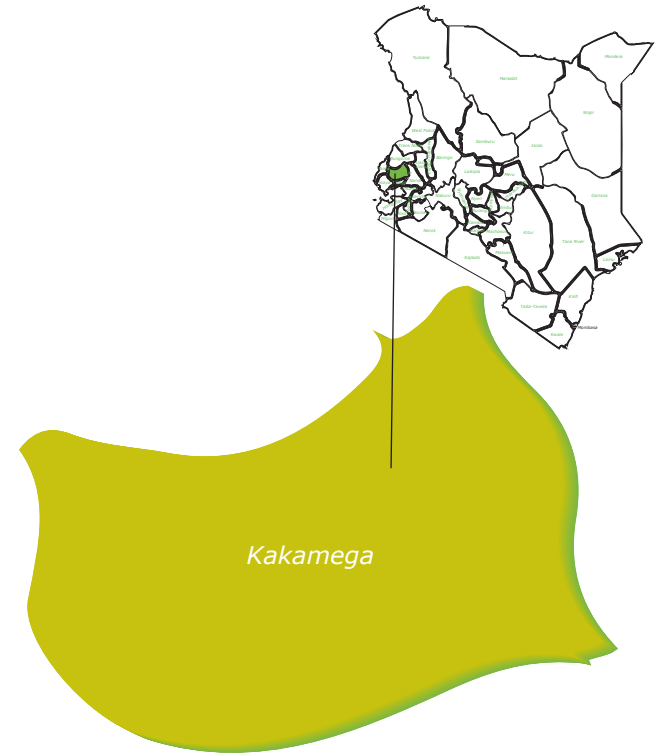


Table 2: Service delivery per county versus national

	Kakamega	Kenya
TB CNR	97	170
Number of TB Control zones	12	292
Diagnostic /100,000	4	6
Treatment/100,000	127	3671
Proportion accessing diagnostic at initial seeking	34%	45%
Proportion accessing treatment at initial seeking	45%	45%
Number of AFB sites	74	2436
Number of Xpert sites	4	134
No of ART sites	180	3235
DR TB treatment sites	12	305

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	993 (42%)	781(36%)	1021(57%)
Clinically diagnosed	1345(58%)	1192(54%)	779 (43%)
Previously treated	249(11%)	173(8%)	72(4%)
EPTB	463(20%)	378(17%)	256(14)
TB among children < 15 (all forms)	235 (10%)	210(10%)	151(8%)
Total	2338	2197	1800

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	2280	2155	1760
TB/HIV co-infection rate	37%	36%	37%
No on CPT	843	770	653
No on ART	794	744	639
IPT % among under fives	1%	4%	6%

Table 5: Type of TB and their outcomes (2016)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	88%	1%	5%	6%	1%
Clinically diagnosed	85%		6%	9%	1%

Previously treated	79%	1%	11%	9%	1%
EPTB	79%		8%	13%	1%
Total	86%	0.4%	6%	7.6%	1%

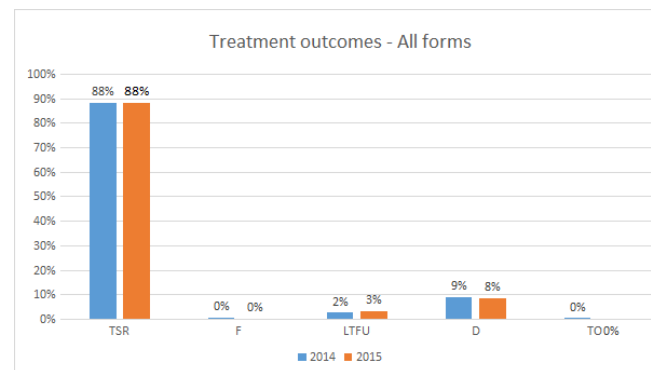
**Figure 11: treatment outcome trends**

Table 2: Service delivery per county versus national

	HIV+	HIV -	Total
BMI <16	148	243	391
BMI <18.5	200	286	486
BMI <16 and given food support	84	126	210
BMI <18.5 and given food support	93	120	213

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	1	2	4
*RR	1	2	12
PDR	0	0	0
Total	2	4	16

*** RR includes 1, 1 and 8 MDRs in 2014, 2015 and 2016 respectively**

KERICHO COUNTY

	Kericho	Kenya
Population	919,637	44156577
Urban Population	28%	29.9%
Population Density	347	75
Proportion of Males	50.4%	49.7%
Proportion of children <14	44%	42%
Proportion of elderly >65	3%	3%
HIV Prevalence	3.5%	5.9%
Poverty Headcount	41%	46

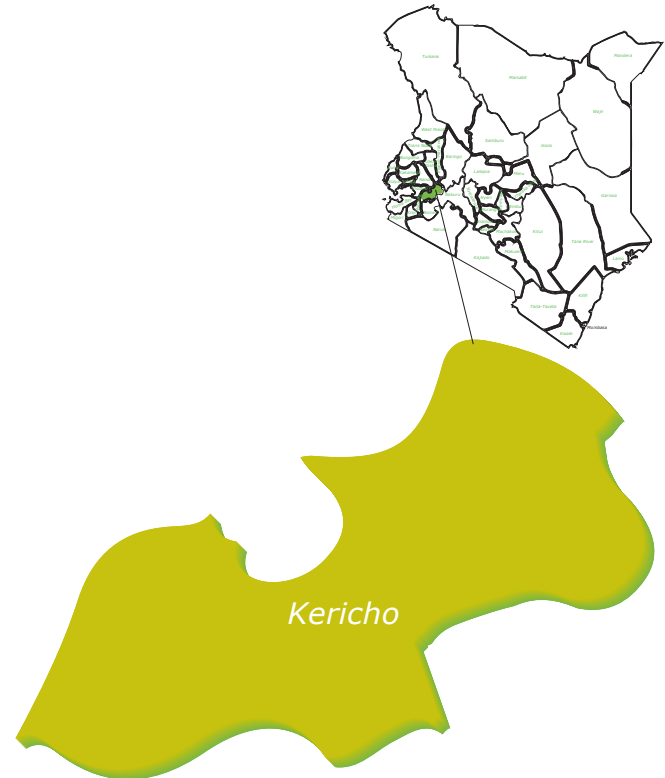


Table 2: Service delivery per county versus national

	Kericho	Kenya
TB CNR	154	170
Number of TB Control zones	6	292
Diagnostic /100,000	5	5
Treatment/100,000	65	3671
Proportion accessing diagnostic at initial seeking	47%	45%
Proportion accessing treatment at initial seeking	41%	45%
Number of AFB sites	46	2436
Number of Xpert sites	3	134
No of ART sites	29	3235
DR TB treatment sites	2	305

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacteriologically confirmed	921(50%)	801(47%)	952(67%)
Clinically diagnosed	921(50%)	697(41%)	478(33%)
Previously treated	119(6%)	80(5%)	59(4%)
EPTB	276(15%)	259(15%)	135(9%)
TB among children < 15 (all forms)	4%	4.1%	4.4%
Total	1842	1701	1430

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1773	1680	1385
TB/HIV co-infection rate	30%	29%	25%
No on CPT	530	494	349
No on ART	474	466	331
IPT % among under fives	0	5%	9%

Table 5: Type of TB and their outcomes (2016)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	91%	0%	5%		
3%	2%				
Clinically diagnosed	92%		2%	5%	1%

Previously treated	81%	0%	17%	3%	3%
EPTB	91%		2%	6%	0%
Total	92%	0.2%	4%	4.1%	1.3%

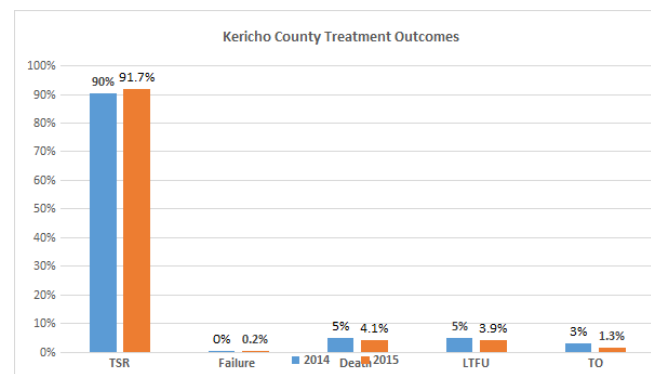
**Figure 12: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	85	296	381
BMI <18.5	124	326	450
BMI <16 and given food support	51	168	219
BMI <18.5 and given food support	82	155	237

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	2	2	2
*RR	4	3	0
PDR	0	0	0
Total	6	5	2

*** RR includes 4 and 1 MDRs in 2014 and 2015 respectively**

KIAMBU COUNTY

	County	Kenya
Population	1,831,800	44,156,577
Urban Population	61%	29.9%
Population Density	721	76
Proportion of Males	50.2%	49.5%
Proportion of children <14	33.7%	41.6%
Proportion of elderly >65	3.4%	3.3%
HIV Prevalence	5.6%	5.9%
Poverty Headcount	6.5	46

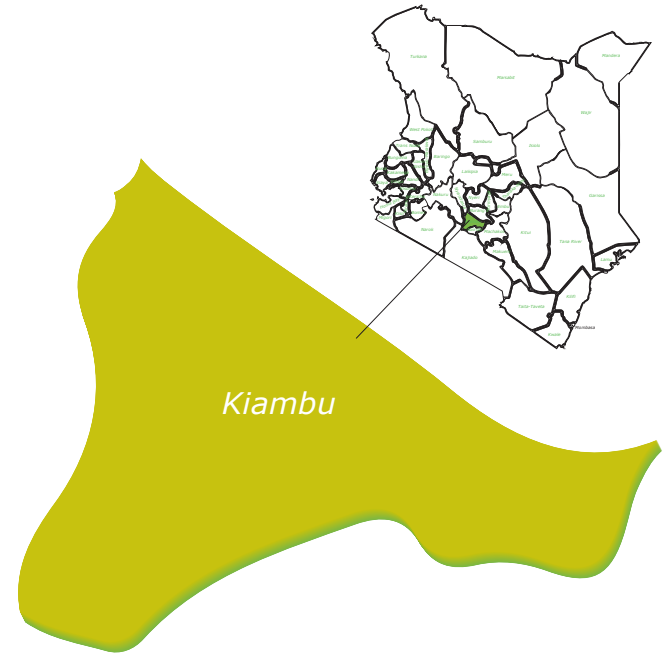


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	217	170
Number of TB Control zones	11	293
Diagnostic /100,000	6	6
Treatment/100,000	7	9
Proportion accessing diagnostic at initial seeking	58%	45%
Proportion accessing treatment at initial seeking	54%	45%
Number of Xpert sites	5	134
No of ART sites	69	3235
DR TB treatment sites	14	308

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	1769(44%)	1867(50%)	2678(66%)
Clinically diagnosed	2259(56%)	1833(50%)	1350(34%)
Previously treated	440(11%)	368(10%)	227(6%)
EPTB	667(17%)	575(16%)	585(15%)
TB among children < 15 (all forms)	118(2.9%)	83(2.2%)	108(2.7%)
Total	4028	3700	4028

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	95%	98%	92%
TB/HIV co-infection rate	33%	30%	28%
CPT Uptake	100%	100%	90%
ART Uptake	89%	95%	82%
IPT % among under fives	1.8%	4%	6%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriological-ly confirmed	89	1	7	3	3
Clinical-ly diagnosed	84	-	7	9	4

Previously treated	74	0.3	12	14	5
EPTB	85	-	6	9	5
Total(All TB cases)	87	0.5	7	6	3

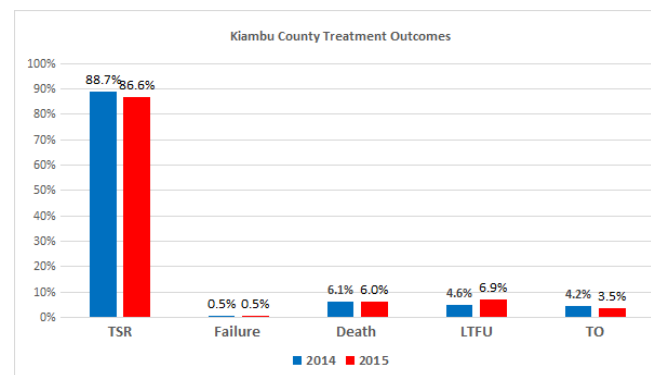
**Figure 13: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	217(30%)	454(63%)	720
BMI <18.5	221(26%)	598(71%)	837
% BMI <16 and given food support	33%	21%	25%
% BMI <18.5 and given food support	19%	13%	14%

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	5	2	7
*RR	2	9	7
PDR	1	0	0
Total	8	11	14

*** RR includes 2, 4 and 3 MDRs in 2014, 2015 and 2016 respectively**

KILIFI COUNTY

	County	Kenya
Population	1,353,042	44,156,577
Urban Population	26%	29.9%
Population Density	108	76
Proportion of Males	48.2%	49.5%
Proportion of children <14	45.9%	41.6%
Proportion of elderly >65	3.4%	3.3%
HIV Prevalence	4.5%	5.9%
Poverty Headcount	25.8	46

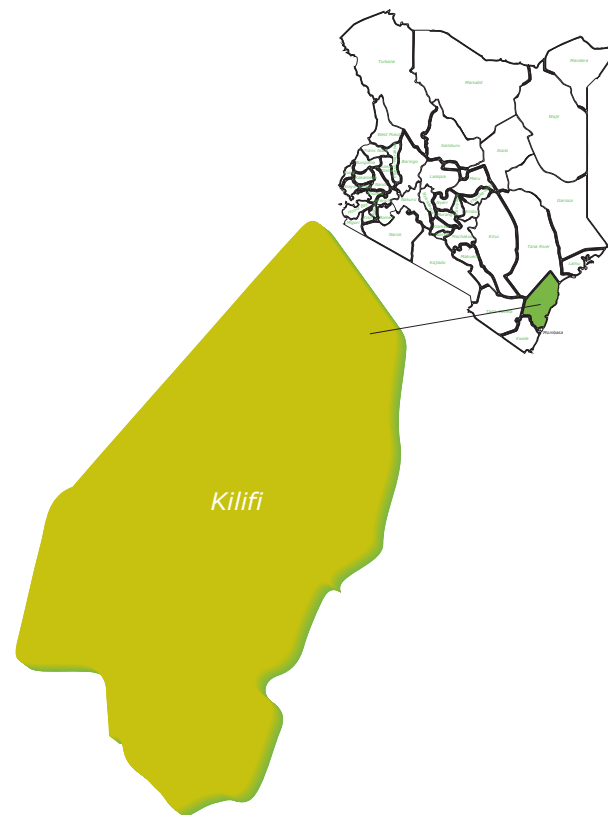


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	122	170
Number of TB Control zones	11	293
Diagnostic /100,000	4	6
Treatment/100,000	8	9
Proportion accessing diagnostic at initial seeking	20%	45%
Proportion accessing treatment at initial seeking	43%	45%
Number of Xpert sites	2	134
No of ART sites	113	3235
DR TB treatment sites	9	308

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	894(38%)	816(43%)	919(54%)
Clinically diagnosed	1485(62%)	872(46%)	772(46%)
Previously treated	220(9%)	188(10%)	134(8%)
EPTB	295(12%)	228(12%)	235(14%)
TB among children < 15 (all forms)	101(4.2%)	62(3.3%)	65(3.8%)
Total	2379	1893	1691

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	97%	100%	99%
TB/HIV co-infection rate	33%	28%	31%
CPT Uptake	99%	100%	100%
ART Uptake	94%	99%	97%
IPT % among under fives	1.3%	7.8%	14%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	88	1	7	4	4
Clinically diagnosed	87	-	4	9	3

Previously treated	82	1	6	11	4
EPTB	88	-	5	7	3
Total(All TB cases)	88	0.4	6	6.4	4

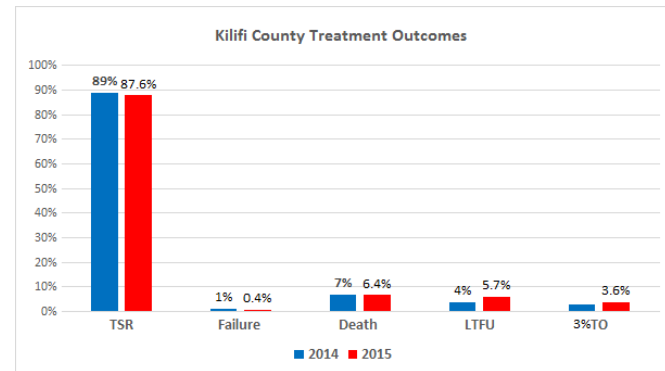
**Figure 14: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	149(33%)	293(65%)	449
BMI <18.5	158(32%)	331(67%)	491
% BMI <16 and given food support	54%	38%	43%
% BMI <18.5 and given food support	39%	23%	28%

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	2
*RR	8	11	13
PDR	0	0	0
Total	8	13	16

*** RR includes 3, 1 and 3 MDRs in 2014, 2015 and 2016 respectively**

KIRINYAGA COUNTY

	County	Kenya
Population	596,030	44,156,577
Urban Population	16%	29.9%
Population Density	403	76
Proportion of Males	50.1%	49.5%
Proportion of children <14	32.2%	41.6%
Proportion of elderly >65	4.9%	3.3%
HIV Prevalence	3.1%	5.9%
Poverty Headcount	25.9	46

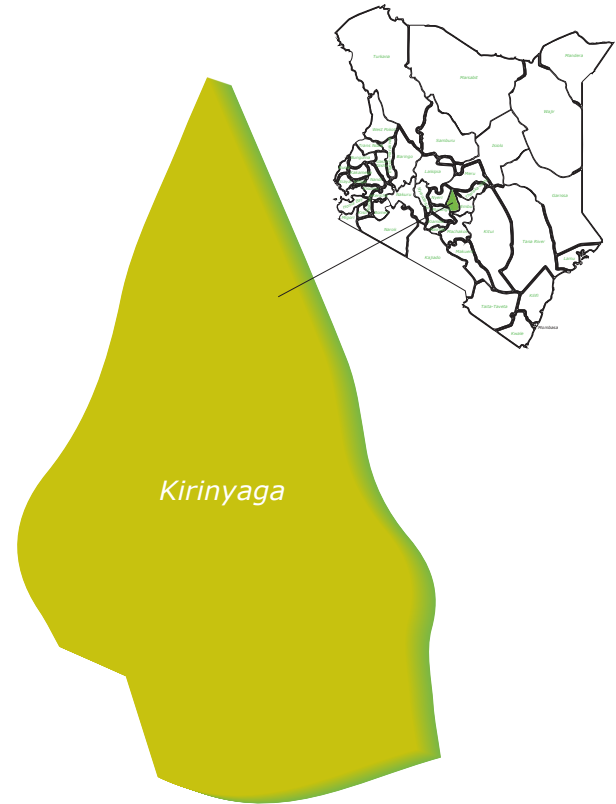


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	191	170
Number of TB Control zones	11	293
Diagnostic /100,000	8	6
Treatment/100,000	11	9
Proportion accessing diagnostic at initial seeking	61%	45%
Proportion accessing treatment at initial seeking	41%	45%
Number of Xpert sites	2	134
No of ART sites	62	3235
DR TB treatment sites	7	308

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	789(54%)	629(47%)	769(66%)
Clinically diagnosed	677(46%)	444(33%)	390(34%)
Previously treated	178(12%)	162(12%)	103(9%)
EPTB	181(12%)	176(13%)	125(11%)
TB among children < 15 (all forms)	74(5%)	48(3.6%)	45(3.9%)
Total	1466	1344	1159

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	100%	100%	99%
TB/HIV co-infection rate	22%	20%	19%
CPT Uptake	100%	100%	100%
ART Uptake	98%	98%	93%
IPT % among under fives	1.7%	6.2%	14%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	90	1	5	3	1
Clinically diagnosed	86	-	2	12	1

Previously treated	85	1	6	8	1
EPTB	88	-	2	10	1
Total(All TB cases)	89	0.8	4	6.2	1

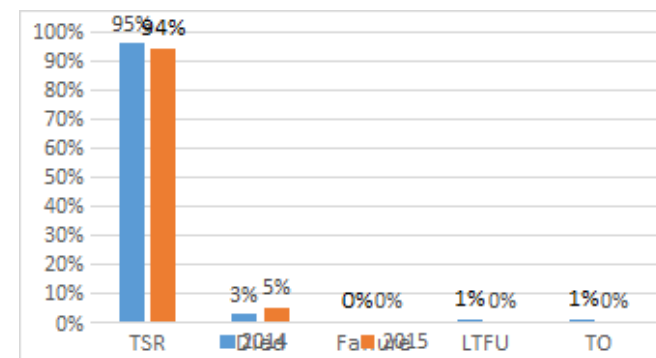
**Figure 15: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	52(17%)	245(82%)	298
BMI <18.5	74(20%)	296(79%)	374
% BMI <16 and given food support	67%	44%	48%
% BMI <18.5 and given food support	42%	25%	28%

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	2	2	1
*RR	11	6	11
PDR	0	1	0
Total	13	12	14

*** RR includes 4, 1 and 5 MDRs in 2014, 2015 and 2016 respectively**

KISII COUNTY

	County	Kenya
Population	1,317,407	44,156,577
Urban Population	22%	29.9%
Population Density	1,000	76
Proportion of Males	47.9%	49.5%
Proportion of children <14	44%	41.6%
Proportion of elderly >65	3.1%	3.3%
HIV Prevalence	4.7%	5.9%
Poverty Headcount	21.7	46

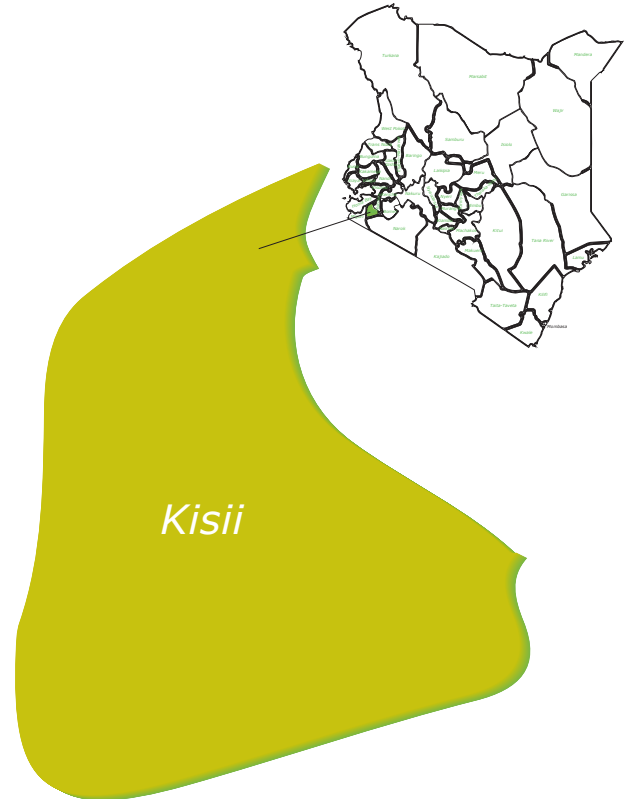


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	114	170
Number of TB Control zones	11	293
Diagnostic /100,000	7	6
Treatment/100,000	9	9
Proportion accessing diagnostic at initial seeking	68%	45%
Proportion accessing treatment at initial seeking	70%	45%
Number of Xpert sites	2	134
No of ART sites	138	3235
DR TB treatment sites	3	308

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	901(49%)	705(42%)	886(59%)
Clinically diagnosed	921(51%)	714(43%)	626(41%)
Previously treated	125(7%)	83(5%)	56(4%)
EPTB	156(9%)	176(11%)	192(13%)
TB among children < 15 (all forms)	72(4%)		
53(3.2%)	51(3.4%)		
Total	1822	1662	1512

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	99%	100%	100%
TB/HIV co-infection rate	37%	36%	35%
CPT Uptake	100%	100%	100%
ART Uptake	97%	99%	99%
IPT % among under fives	0.5%	9.8%	17%

Previously treated	86	1	2	10	0
EPTB	87	-	2	10	0
Total(All TB cases)	92	0.2	2	5.9	0.1

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacterio- logically con- firmed	93	0	2	4	0
Clinically diag- nosed	90	-	1	8	0

Figure 16: treatment outcome trends

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	139(39%)	217(61%)	356
BMI <18.5	175(39%)	277(61%)	452
% BMI <16 and given food support	58%	35%	44%
% BMI <18.5 and given food support	44%	36%	39%

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	1	0	1
*RR	14	17	4
PDR	0	0	0
Total	15	17	5

*** RR includes 6, 6 and 1 MDRs in 2014, 2015 and 2016 respectively**

KISUMU COUNTY

	Kisumu	Kenya
Population	1097307	43,726,652
Urban Population	52	29.9%
Population Density	508	75
Proportion of Males	49%	49.6
Proportion of children <14	47%	42%
Proportion of elderly >65	5%	3.3%
HIV Prevalence	4.4%	6.04%
Poverty Headcount	22.2%	46

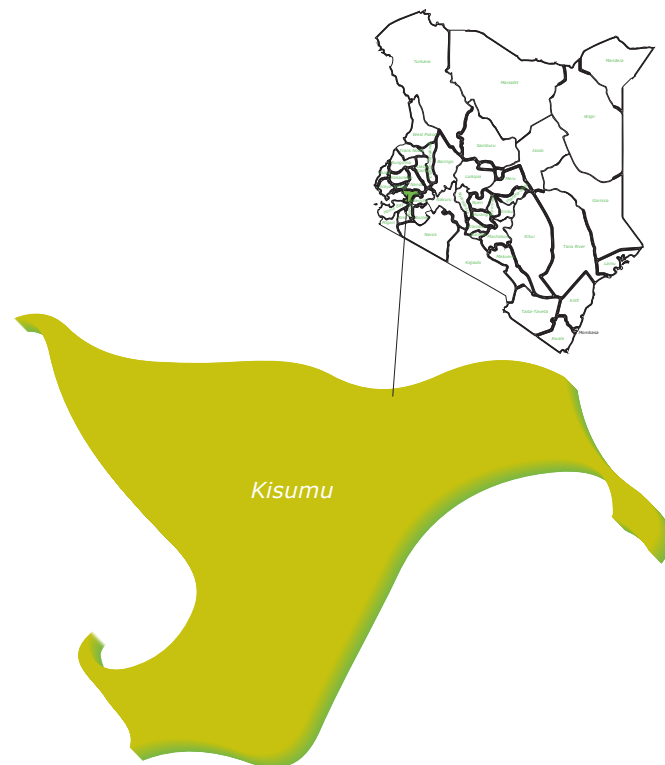


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	228	170
Number of TB Control zones	7	290
Treatment/100,000	10	7
Proportion accessing diagnostic at initial seeking	44%	45%
Proportion accessing treatment at initial seeking	62%	45%
Number of Xpert sites	6	134
Number of AFB sites	58	2436
No of ART sites	138	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	1525(45%)	1629(56%)	1514(59%)
Clinically diagnosed	1841(55%)	1300(44%)	1059(41%)
Previously treated	320(10%)	263(9%)	174(7%)
EPTB	463(14%)	391(13%)	296(12%)
TB among children < 15 (all forms)	294(9%)	240(8%)	184(7%)
Total	3366	2934	2564

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	3263	2872	2494
TB/HIV co-infection rate	62.1%	61.7%	59.0%
No on CPT	2090	1805	1509
No on ART	1976	1703	1397
IPT % among under fives	6%	60%	86%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	84%	1%	5%	5%	5%
Clinically diagnosed	83%	0%	3.5%	10.5%	3%

Previously treated	81%	1%	7%	8%	3%
EPTB	82%	0%	2%	12%	4%
Total	83.5%	0.5%	4%	8%	4%

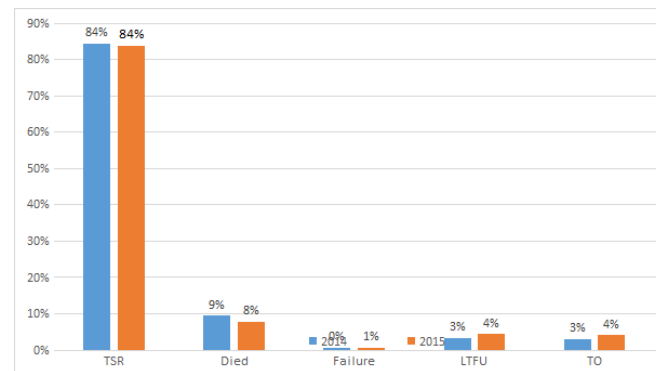
**Figure 17: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	286	100	386
BMI <18.5	486	258	744
BMI <16 and given food support	113	26	139
BMI <18.5 and given food support	105	29	134

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	1	7	10
*RR	10	9	6
PDR	1	0	1
Total	12	16	17

*** RR includes 10, 9 and 6 MDRs in 2014, 2015 and 2016 respectively**

KITUI COUNTY

	Kitui	Kenya
Population	1,086,599	43,726,652
Urban Population	14%	29.9%
Population Density	37.3	75
Proportion of Males	48%	49.6
Proportion of children <14	47%	42%
Proportion of elderly >65	5%	3.3%
HIV Prevalence	4.4%	6.04%
Poverty Headcount	22.2%	46

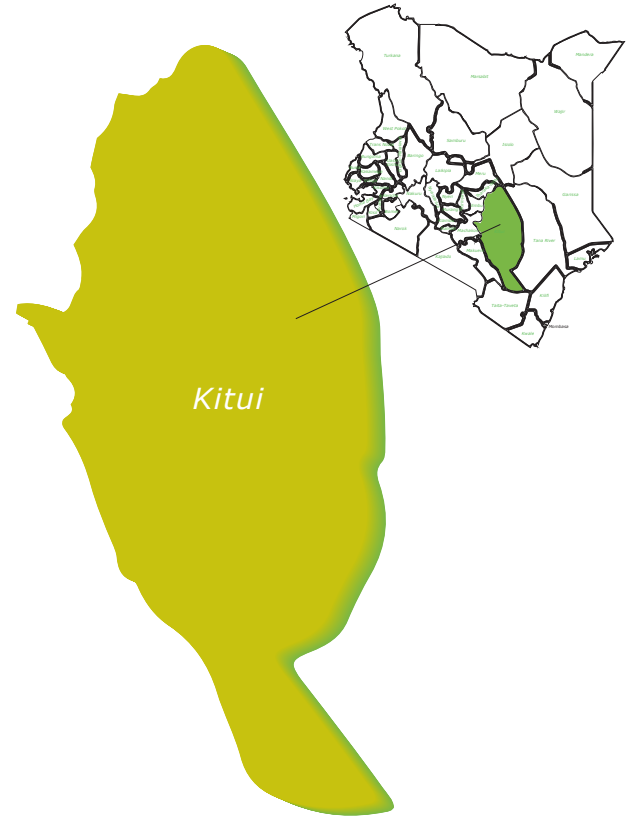


Table 2: Service delivery per county versus national

	Kitui	Kenya
TB CNR	162	170
Number of TB Control zones	8	290
Treatment/100,000	11	7
Proportion accessing diagnostic at initial seeking	44%	45%
Proportion accessing treatment at initial seeking	62%	45%
Number of Xpert sites	3	134
Number of AFB sites	58	2436
No of ART sites	118	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	992(48%)	1088(54%)	1218(69%)
Clinically diagnosed	828(40%)	751(37%)	443(25%)
Previously treated	233(11%)	168(8%)	114(6%)
EPTB	279(14%)	328(16%)	233(13%)
TB among children < 15 (all forms)	139(7%)	130(6%)	111(6%)
Total	2053	2007	1775

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	2048	2002	1767
TB/HIV co-infection rate	29%	26%	22%
No on CPT	589	515	393
No on ART	578	513	387
IPT % among under fives	41%	25%	43%

Table 5: Type of TB and their outcomes (2016)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	92%	1%	3.5%	3%	0.5%
Clinically diagnosed	85%	0%	3%	12%	0%

Previously treated	84.5%	0.5%	5%	10%	0%
EPTB	85%	0%	3%	11%	1%
Total	89%	1%	3%	7%	0%

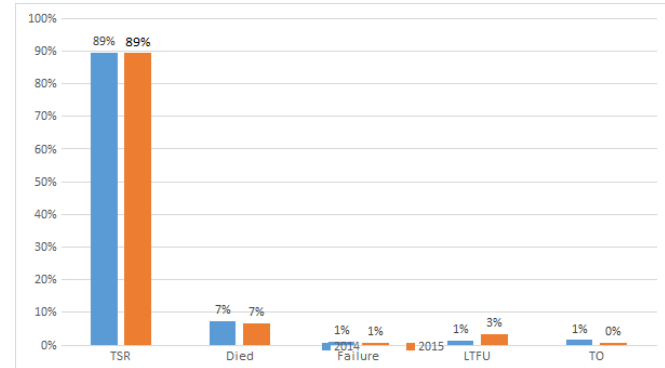
**Figure 18: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	97	272	369
BMI <18.5	157	525	682
BMI <16 and given food support	44	82	126
BMI <18.5 and given food support	30	85	115

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	2	5	5
*RR	5	6	3
PDR	0	1	1
Total	7	12	9

*** RR includes 5, 6 and 3 MDRs in 2014, 2015 and 2016 respectively**

KWALE COUNTY

	Kwale	Kenya
Population	792,698	43,726,652
Urban Population	18%	29.9%
Population Density	89	75
Proportion of Males	49%	49.6
Proportion of children <14	46%	42%
Proportion of elderly >65	3%	3.3%
HIV Prevalence	5.9%	6.04%
Poverty Headcount	73%	46

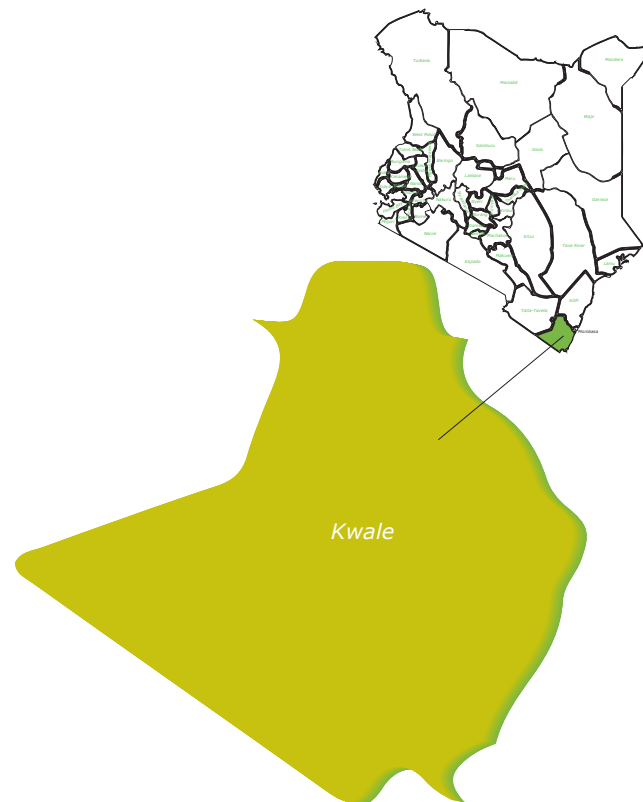


Table 2: Service delivery per county versus national

	Kwale	Kenya
TB CNR	133	170
Number of TB Control zones	4	290
Treatment/100,000	6	7
Proportion accessing diagnostic at initial seeking	39%	45%
Proportion accessing treatment at initial seeking	70%	45%
Number of Xpert sites	3	134
Number of AFB sites	39	2436
No of ART sites	84	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	387(33%)	431(37%)	419(39%)
Clinically diagnosed	668(57%)	641(55%)	560(53%)
Previously treated	117(10%)	83(7%)	84(8%)
EPTB	228(19%)	183(16%)	181(17%)
TB among children < 15 (all forms)	123(10%)	136(12%)	135(13%)
Total	1172	1155	1063

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1071	1105	1012
TB/HIV co-infection rate	25%	27%	24%
No on CPT	283	309	247
No on ART	227	293	225
IPT % among under fives	30%	40%	72%

Table 5: Type of TB and their outcomes (2016)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	86%	1%	5%	3%	4%
Clinically diagnosed	81%	0%	5%	11%	3%

Previously treated	77%	15	10%	11%	1%
EPTB	77%	0%	5%	13%	5%
Total	83%	0%	5%	8%	4%

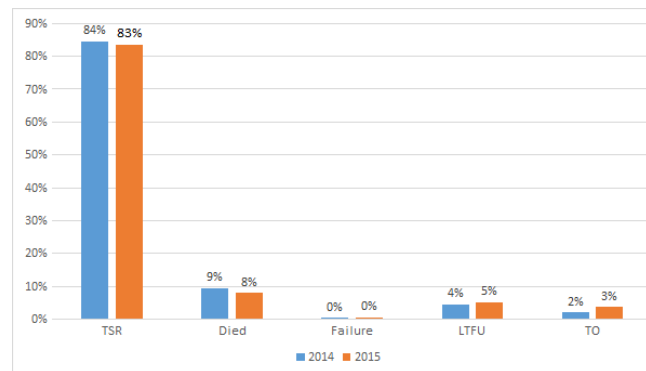
**Figure 19: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	52	92	144
BMI <18.5	76	196	272
BMI <16 and given food support	18	13	31
BMI <18.5 and given food support	14	20	34

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	2
*RR	1	4	3
PDR	0	0	0
Total	1	4	5

*** RR includes 1, 4 and 3 MDRs in 2014, 2015 and 2016 respectively**

LAIKIPIA COUNTY

	Laikipia	Kenya
Population	487,934	43,726,652
Urban Population	25%	29.9%
Population Density	48	75
Proportion of Males	50%	49.6
Proportion of children <14	40%	42%
Proportion of elderly >65	4%	3.3%
HIV Prevalence	3.2%	6.04%
Poverty Headcount	47	46

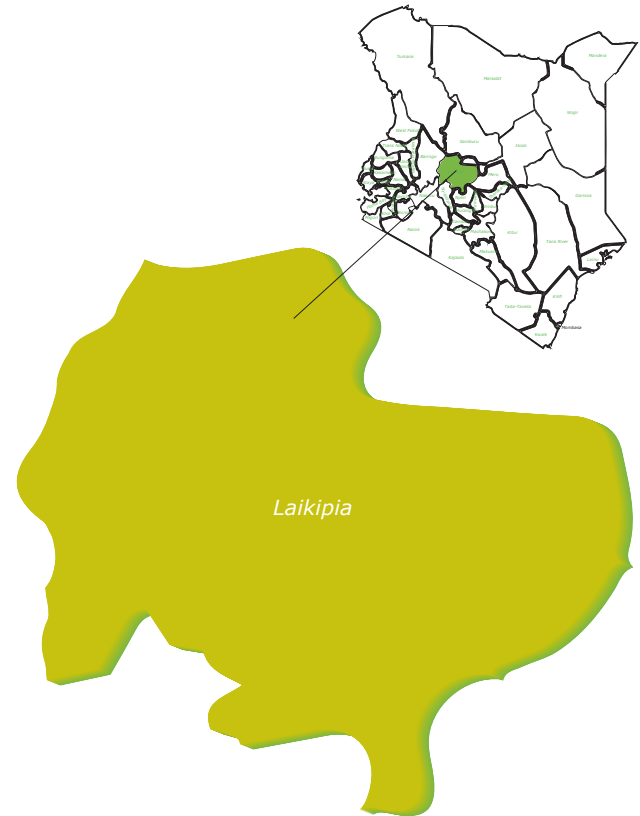


Table 2: Service delivery per county versus national

	Laikipia	Kenya
TB CNR	152	170
Number of TB Control zones	3	290
Treatment/100,000	9	7
Proportion accessing diagnostic at initial seeking	34%	45%
Proportion accessing treatment at initial seeking	34%	45%
Number of Xpert sites	3	134
Number of AFB sites	25%	2436
No of ART sites	33	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	322(41%)	390(53%)	403(54%)
Clinically diagnosed	375(48%)	274(38%)	273(36%)
Previously treated	83(11%)	66(9%)	73(10%)
EPTB	117(15%)	97(13%)	90(12%)
TB among children < 15 (all forms)	52(7%)	52(7%)	78(10%)
Total	780	730	749

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	771	723	742
TB/HIV co-infection rate	35%	28%	30%
No on CPT	276	207	226
No on ART	234	199	214
IPT % among under fives	0%	39%	78%

Table 5: Type of TB and their outcomes (2016)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	91%	1.5%	4.5%	3%	0%
Clinically diagnosed	93%	0%	1%	6%	0%

Previously treated	92%	3%	2%	3%	0%
EPTB	93%	3%	4%	0%	0%
Total	92%	1%	3%	4%	0%

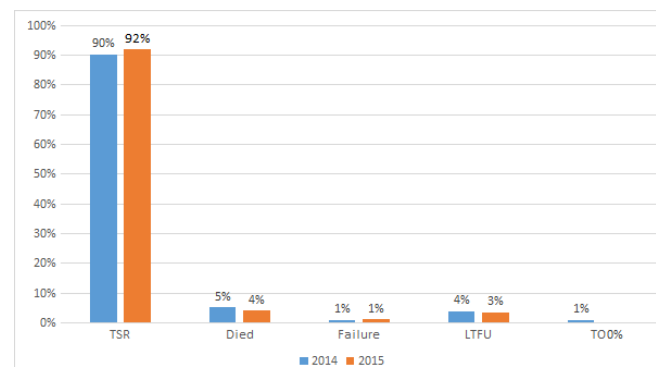
**Figure 20: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	51	76	127
BMI <18.5	70	140	210
BMI <16 and given food support	35	44	79
BMI <18.5 and given food support	40	65	105

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	3
*RR	0	4	5
PDR	0	1	0
Total	0	5	8

*** RR includes 1 and 4 MDRs in 2015 and 2016 respectively**

LAMU COUNTY

	Lamu	Kenya
Population	123,842	44,156,576
Urban Population	19.9%	29.9%
Population Density	18	75
Proportion of Males	52%	49.6%
Proportion of children <15	41%	42%
Proportion of elderly >65	3.2%	3.3%
HIV Prevalence	2.3%	6.04%
Poverty Headcount	32	46

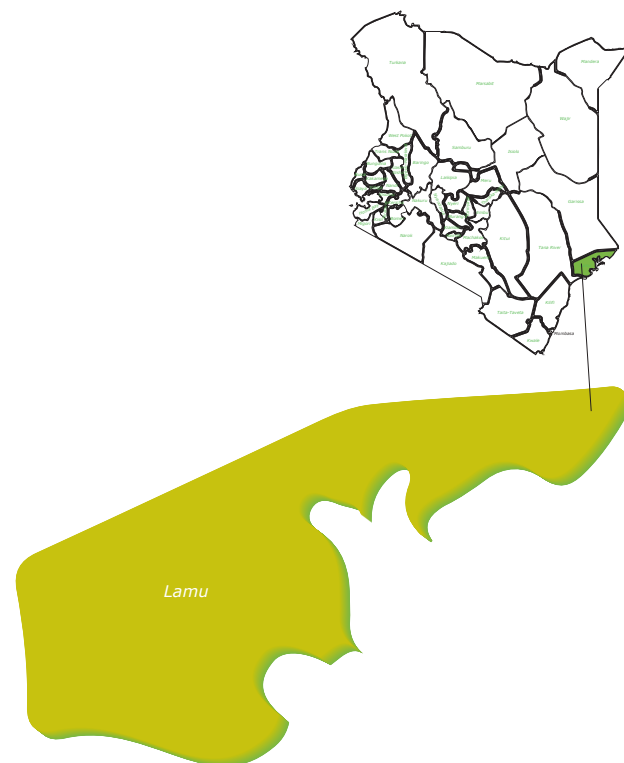


Table 2: Service delivery per county versus national

	Lamu	Kenya
TB CNR	225	170
Number of TB Control zones	2	290
Proportion accessing diagnostic at initial seeking	36%	45%
Proportion accessing treatment at initial seeking	33%	45%
Number of AFB sites	14	2436
Number of Xpert sites	1	134
Number of ART sites	22	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	123(55%)	128(61%)	118(42%)
Clinically diagnosed	71(32%)	52(25%)	125(44%)
Previously treated	19(8%)	10(5%)	12(4%)
EPTB	30(13%)	27(13%)	40(14%)
TB among children < 15 (all forms)	11(5%)	16(8%)	55(19%)
Total	224	210	283

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
% tested for HIV	99%	99%	99%
TB/HIV co-infection rate	19%	23%	16%
CPT Uptake	95%	96%	100%
ART Uptake	95%	98%	100%
IPT % among under fives	0%	26%	6.4%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacterio- logically con- firmed	86%	0%	8%	1%	5%
Clinically diag- nosed	90%	0%	0%	8%	2%

Previously treated	80%	0%	10%	0%	10%
EPTB	96%	0%	0%	4%	0%
Total	88%	0%	5%	3%	4%

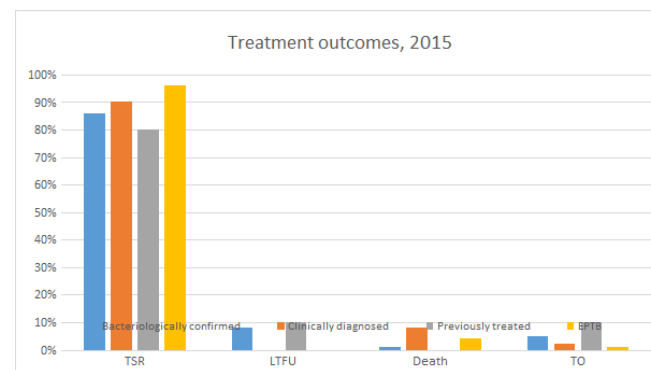
**Figure 21: Treatment outcomes**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	7	28	35
BMI <18.5	22	87	109
BMI <16 and given food support	5	12	17
BMI <18.5 and given food support	12	29	41

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	0
*RR	1	1	0
PDR	0	0	0
Total	1	1	0

*** RR includes 1 and 1 MDRs in 2014 and 2015 respectively**

MACHAKOS COUNTY

	Machakos	Kenya
Population	1,179,215	44,156,576
Urban Population	52%	29.9%
Population Density	200	75
Proportion of Males	50%	49.6%
Proportion of children <15	39%	42%
Proportion of elderly >65	5%	3.3%
HIV Prevalence	5.0%	6.04%
Poverty Headcount	56	46

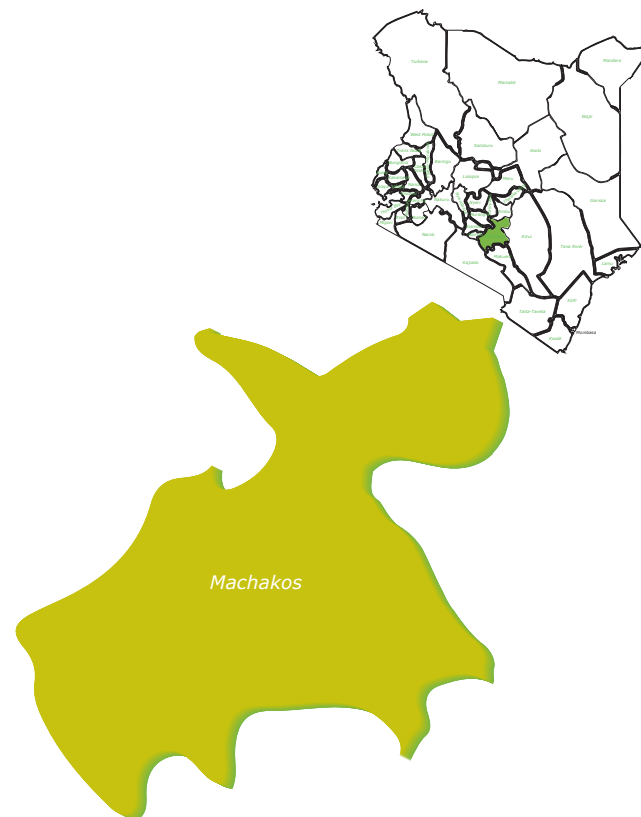


Table 2: Service delivery per county versus national

	Machakos	Kenya
TB CNR	179	170
Number of TB Control zones	8	290
Proportion accessing diagnostic at initial seeking	42%	45%
Proportion accessing treatment at initial seeking	49%	45%
No of AFB sites	60	2436
Number of Xpert sites	3	134
Number of ART sites	62	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	1290(53%)	1319(59%)	1469(69%)
Clinically diagnosed	618(25%)	459(21%)	261(12%)
Previously treated	206(8%)	156(7%)	123(6%)
EPTB	531(22%)	446(20%)	406(19%)
TB among children < 15 (all forms)	133(5%)	126(6%)	129(6%)
Total	2439	2224	2136

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
% tested for HIV	99%	99.5%	99%
TB/HIV co-infection rate	29%	26.6%	23.5%
CPT Uptake	100%	99.5%	99.6%
ART Uptake	96%	96.6%	96.6%
IPT % among under fives	7.4%	9.7%	44%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	89.6%	1.5%	4.2%	3.8%	0.2%
Clinically diagnosed	85.4%	0%	3.5%	10.5%	0.2%

Previously treated	81%	3%	4%	10%	1%
EPTB	88%	0%	3%	9%	0%
Total	88%	1%	4%	6%	0%

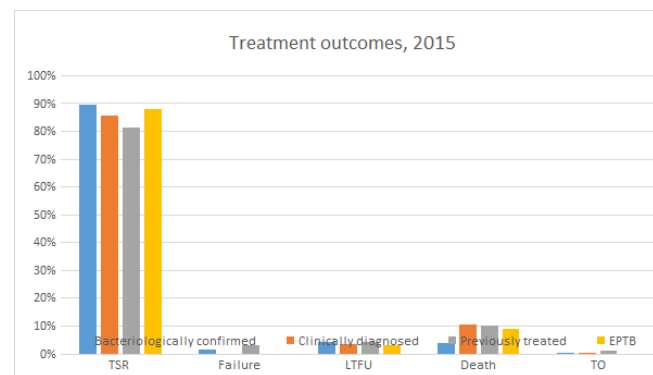
**Figure 22: Treatment outcomes**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	111	239	350
BMI <18.5	276	747	1031
BMI <16 and given food support	74	147	221
BMI <18.5 and given food support	141	315	461

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	3	2	4
*RR	8	5	11
PDR	2	0	0
Total	13	7	15

*** RR includes 8, 5 and 11 MDRs in 2014, 2015 and 2016 respectively**

MAKUENI COUNTY

	Makueni	Kenya
Population	949,298	44,156,576
Urban Population	12%	29.9%
Population Density	125	75
Proportion of Males	49.2%	49.6%
Proportion of children <15	43.7%	42%
Proportion of elderly >65	5.1%	3.3%
HIV Prevalence	5.6	6.04%
Poverty Headcount	64	46

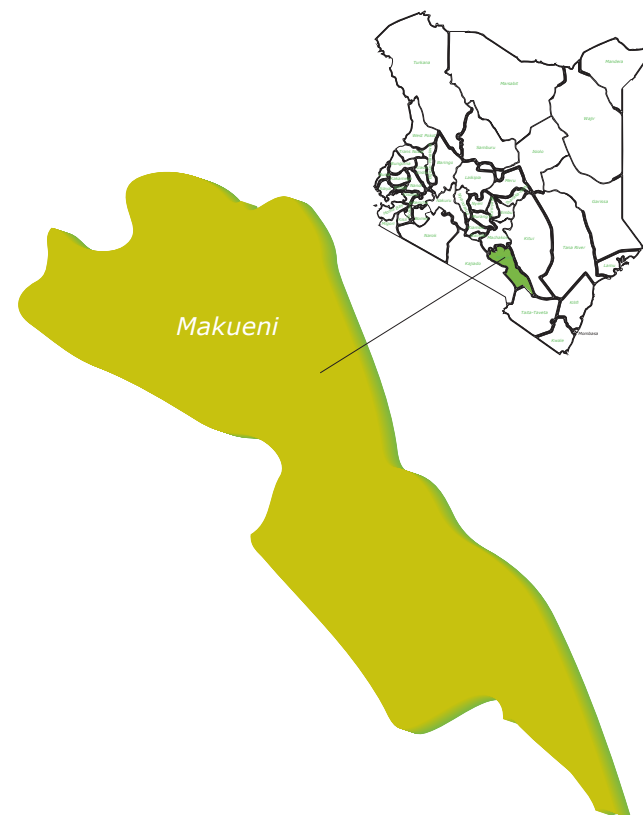


Table 2: Service delivery per county versus national

	Makueni	Kenya
TB CNR	151	170
Number of TB Control zones	6	290
Proportion accessing diagnostic at initial seeking	40%	45%
Proportion accessing treatment at initial seeking	45%	45%
Number of AFB sites	60	2436
Number of Xpert sites	4	134
Number of ART sites	76	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	833(52%)	958(59%)	976(67%)
Clinically diagnosed	570(35%)	425(26%)	208(14%)
Previously treated	172(11%)	143(9%)	96(7%)
EPTB	203(13%)	248(15%)	271(19%)
TB among children < 15 (all forms)	133(8%)	88(5%)	78(5%)
Total	1606	1631	1455

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
% tested for HIV	97.7%	98.8%	98.6%
TB/HIV co-infection rate	28.2%	27.9%	28%
CPT Uptake	99.6%	99.1%	99.3%
ART Uptake	96.2%	97.4%	97.3%
IPT % among under fives	4.1%	27.6%	30.6%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	89%	2%	4%	3%	1%
Clinically diagnosed	84%	0%	2%	13%	1%

Previously treated	76%	3%	8%	13%	0%
EPTB	83%	0%	2%	14%	1%
Total	87%	1%	3%	7%	1%

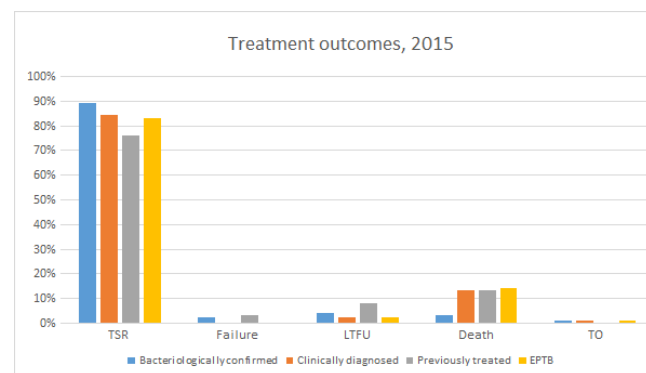
**Figure 23: Treatment outcome**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	88	165	256
BMI <18.5	232	503	743
BMI <16 and given food support	53	110	166
BMI <18.5 and given food support	103	209	318

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	2	0
RR	0	4	7
PDR	0	1	0
Total	0	7	7

*** RR includes 4 and 7 MDRs in 2015 and 2016 respectively**

MANDERA COUNTY

	Mandera	Kenya
Population	697,922	44,156,576
Urban Population	18%	29.9%
Population Density	45	75
Proportion of Males	51.7%	49.6%
Proportion of children <15	44.7%	42%
Proportion of elderly >65	2.4%	3.3%
HIV Prevalence	1.7	6.04%
Poverty Headcount	87	46

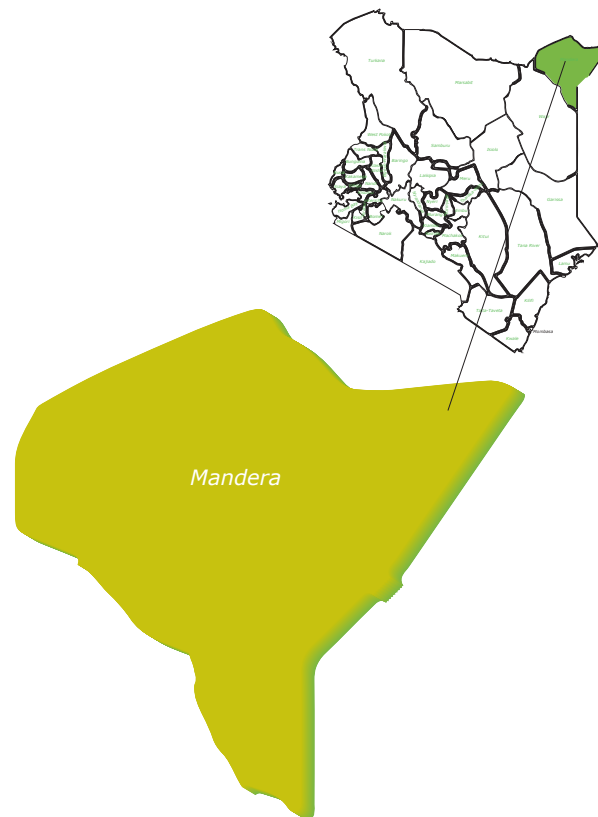


Table 2: Service delivery per county versus national

	Mandera	Kenya
TB CNR	78	170
Number of TB Control zones	4	290
Proportion accessing diagnostic at initial seeking	79%	45%
Proportion accessing treatment at initial seeking	55%	45%
Number of AFB sites	16	2436
Number of Xpert sites	1	134
No of ART sites	8	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	223(35%)	257(42%)	238(44%)
Clinically diagnosed	294(46%)	220(36%)	163(30%)
Previously treated	50(8%)	35(6%)	15(3%)
EPTB	117(18%)	130(21%)	146(27%)
TB among children < 15 (all forms)	70(11%)	79(13%)	85(16%)
Total	634	607	547

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
% tested for HIV	99.5%	88.6%	97.4%
TB/HIV co-infection rate	2.7%	1.2%	1.6%
CPT Uptake	100%	100%	100%
ART Uptake	88.2%	100%	77.8%
IPT % among under fives	0%	0%	33.3%

Previ- ously treated	97.1%	0%	2.9%	0%	0%
EPTB	99.2%	0%	0%	0.8%	0%
Total	96.5%	0.2%	0.7%	1.8%	0.8%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteri- ological- ly con- firmed	93.8%	0.4%	1.6%		
2.7%	1.6%				
Clinically diag- nosed	98.2%	0%	0%	1.4%	0.5%

Figure 24: Treatment outcomes

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	3	162	167
BMI <18.5	5	280	287
BMI <16 and given food support	2	72	74
BMI <18.5 and given food support	2	119	121

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	0
RR	0	0	0
PDR	0	0	0
MDR	0	0	0
Total	0	0	0

MURANG'A COUNTY

	County	Kenya
Population	958,969	44,200,000
Urban Population	11.4%	29.9%
Population Density	375	76
Proportion of Males	48.2%	49.5%
Proportion of children <14	36.5%	41.6%
Proportion of elderly >65	6.9%	3.3%
HIV Prevalence	4.2%	5.9%
Poverty Headcount	30%	46%



Table 2: Service delivery per county versus national

	Murang'a	Kenya
TB CNR	137	170
Number of TB Control zones	7	293
Proportion accessing diagnostic at initial seeking	59%	45%
Proportion accessing treatment at initial seeking	49%	45%
Number of AFB Sites	69	2436
Number of Xpert sites	2	134
No of ART sites	28	3235
DR TB treatment sites	37	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
New Bacterio-logically confirmed	912(45%)	1072(57%)	935(63%)
New Clinically diagnosed	669(33%)	366(20%)	226(15%)
Previously treated	189(9%)	170(9%)	105(7%)
EPTB	268(13%)	263(14%)	221(15%)
TB among children < 15 (all forms)	143(7%)	89(5%)	98(7%)
Total	2038	1871	1487

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	2006	1862	1480
TB/HIV co-infection rate	26.9%	23.2%	21.7%
No on CPT	548	434	330
No on ART	522	420	326
IPT among under fives	68	151	121

Previously treated	84.5%	1%	5.6%	8.2%	0.5%
EPTB	85.5%	0%	2.9%	10.9%	0.7%
Total	89.1%	0.5%	3.5%	6.2%	0.6%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriological-ly confirmed	93.1%	0.8%	3%		
2.6%	0.4%				
Clinical-ly diagnosed	82.6%	0%	4.6%	11.8%	1%

Figure 25: treatment outcome trends

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	35	76	111
BMI <18.5	27	61	89
BMI <16 and given food support	24	36	60
BMI <18.5 and given food support	9	21	30

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	3	2	7
*RR	2	6	11
PDR	0	3	0
Total	5	11	18

*** RR includes 2 and 1 MDRs in 2014 and 2016 respectively**

NAIROBI COUNTY

	County	Kenya
Population	4,232,087	44,200,000
Urban Population	4,232,087	29.9%
Population Density	3009	76
Proportion of Males	47.6%	49.5%
Proportion of children <14	28%	41.6%
Proportion of elderly >65	1%	3.3%
HIV Prevalence	6.1%	5.9%
Poverty Headcount	21%	46%

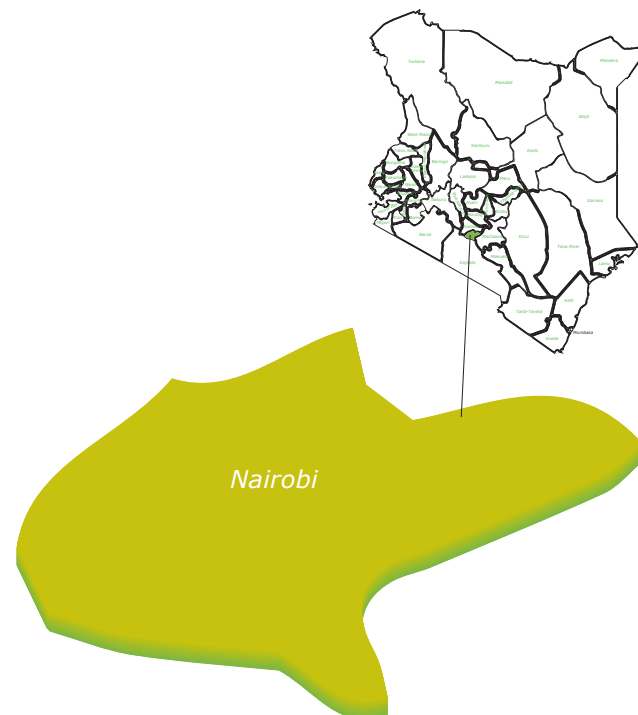


Table 2: Service delivery per county versus national

	Narobi	Kenya
TB CNR	297	170
Number of TB Control zones	22	293
Proportion accessing diagnostic at initial seeking	40%	45%
Proportion accessing treatment at initial seeking	22%	45%
Number of AFB Sites	232	2436
Number of Xpert sites	15	134
No of ART sites	203	3235
DR TB treatment sites	30	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
New Bacteriologically confirmed	5271(38%)	5416(44%)	5684(45%)
New Clinically diagnosed	3669(26%)	2939(24%)	2980(23%)
Previously treated	1505(11%)	1131(9%)	850(7%)
EPTB	3408(25%)	2942(24%)	3189(25%)
TB among children < 15 (all forms)	1065(8%)	818(7%)	963(8%)
Total	13853	12428	12703

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	12747	12103	11872
TB/HIV co-infection rate	35.2%	35%	32.7%
No on CPT	4822	4326	4047
No on ART	3951	4081	3845
IPT among under fives	43	315	652

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriological-ly confirmed	86.8%	1%	5.2%	2.4%	4.6%
Clinical-ly diagnosed	85.8%	0.1%	3.8%	6%	4%

Previously treated	79%	1.3%	7.9%	7%	4.5%
EPTB	84.4%	0%	4%	6.5%	4.6%
Total	85.3%	0.6%	4.8%	4.7%	4.6%

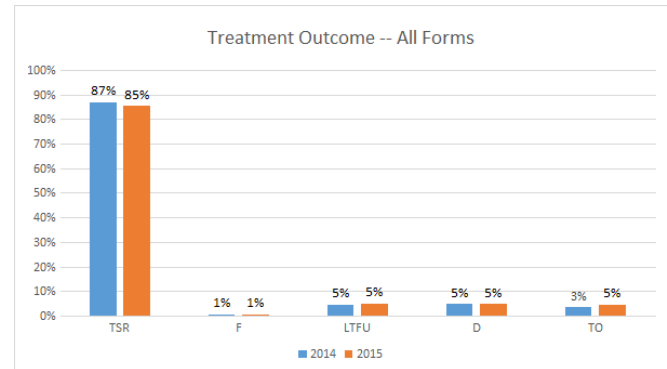
**Figure 26: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	5881	13477	19358
BMI <18.5	6445	13565	20010
BMI <16 and given food support	2915	4662	7577
BMI <18.5 and given food support	2453	3727	6180

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	7	43	35
*RR	42	28	23
PDR	5	8	3
Total	54	79	61

*** RR includes 42, 28 and 23 MDRs in 2014, 2015 and 2016 respectively**

NAKURU COUNTY

	County	Kenya
Population	1,925,296	44,200,000
Urban Population	20.4%	29.9%
Population Density	256.9	76
Proportion of Males	50.1%	49.5%
Proportion of children <14	41.8%	41.6%
Proportion of elderly >65	3%	3.3%
HIV Prevalence	4.1%	5.9%
Poverty Headcount	41%	46%

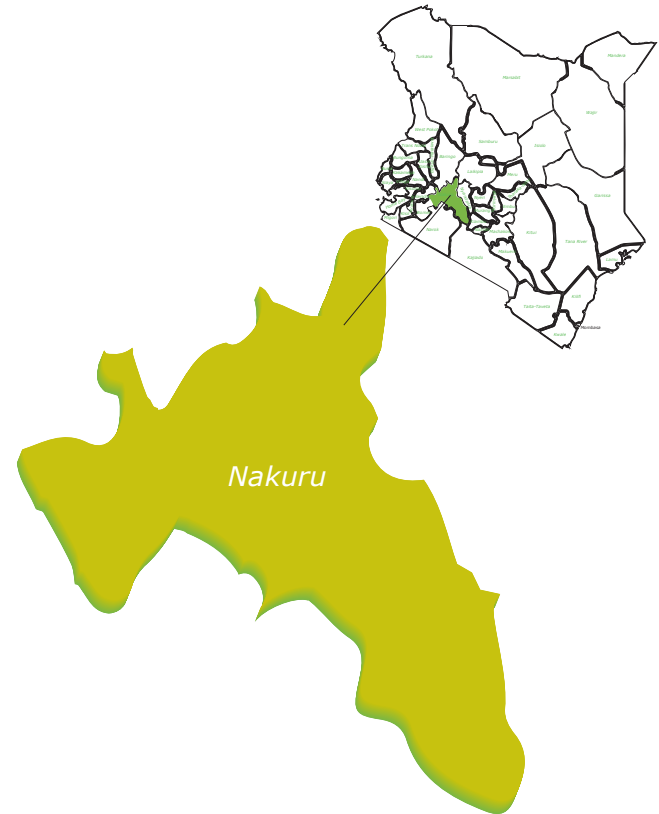


Table 2: Service delivery per county versus national

	Nakuru	Kenya
TB CNR	159	170
Number of TB Control zones	9	293
Proportion accessing diagnostic at initial seeking	37%	45%
Proportion accessing treatment at initial seeking	32%	45%
Number of AFB Sites	80	2436
Number of Xpert sites	3	134
No of ART sites	105	3235
DR TB treatment sites	15	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
New Bacteriologically confirmed	1498(34%)	1621(45%)	1555(49%)
New Clinically diagnosed	1764(40%)	1142(31%)	833(26%)
Previously treated	336(8%)	303(8%)	213(7%)
EPTB	775(18%)	569(16%)	573(18%)
TB among children < 15 (all forms)	1065(10%)	818(7%)	963(7%)
Total	4373	3635	3174

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	4118	3543	3107
TB/HIV co-infection rate	36.6%	36.1%	32%
No on CPT	1601	1311	1017
No on ART	1378	1239	999
IPT among under fives	6	83	196

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	89.7%	0.7%	4.4%	2.7%	2.5%
Clinically diagnosed	85.3%	0%	4.6%	7.1%	2.6%

Previously treated	77.8%	1.3%	9.9%	8.3%	2.3%
EPTB	83.7%	0%	4.5%	8.8%	2.6%
Total	86.4%	41.1%	4.9%	5.6%	2.5%

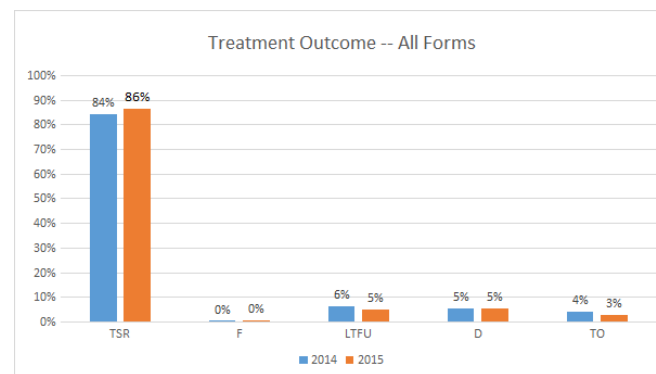
**Figure 27: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	228	455	683
BMI <18.5	304	563	867
BMI <16 and given food support	125	199	324
BMI <18.5 and given food support	140	216	356

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	1	5	7
*RR	3	12	8
PDR	0	1	0
Total	4	18	15

*** RR includes 3, 11 and 8 MDRs in 2014, 2015 and 2016 respectively**

NANDI COUNTY

	County	Kenya
Population	906,881	44,200,000
Urban Population	3.9%	29.9%
Population Density	314	76
Proportion of Males	50%	49.5%
Proportion of children <14	44.9%	41.6%
Proportion of elderly >65	3.6%	3.3%
HIV Prevalence	2.4%	5.9%
Poverty Headcount	47%	46%

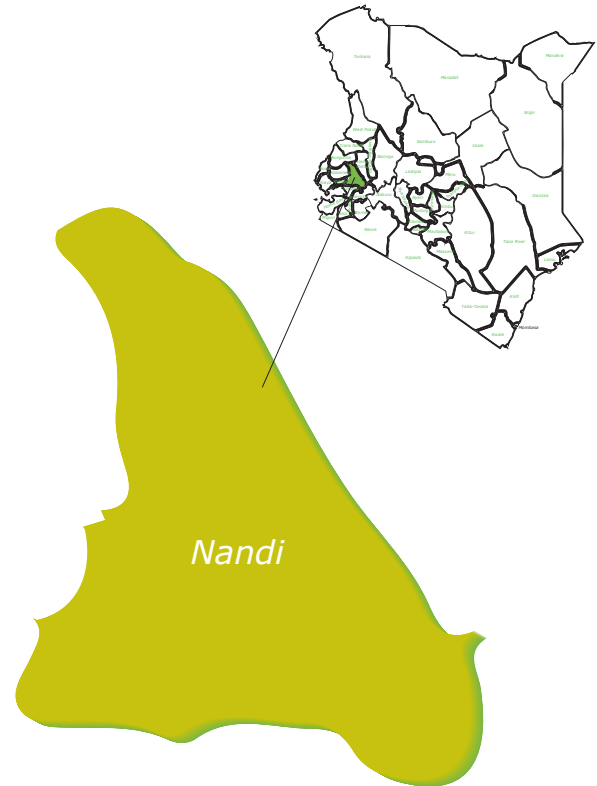


Table 2: Service delivery per county versus national

	Nandi	Kenya
TB CNR	73	170
Number of TB Control zones	6	293
Proportion accessing diagnostic at initial seeking	40%	45%
Proportion accessing treatment at initial seeking	40%	45%
Number of AFB Sites	37	2436
Number of Xpert sites	2	134
No of ART sites	23	3235
DR TB treatment sites	7	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
New Bacteriologically confirmed	335(43%)	359(50%)	413(60%)
New Clinically diagnosed	263(33%)	161(23%)	133(19%)
Previously treated	56(7%)	48(7%)	41(6%)
EPTB	133(17%)	144(20%)	101(15%)
TB among children < 15 (all forms)	78(10%)	62(9%)	54(8%)
Total	787	712	688

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	753	708	684
TB/HIV co-infection rate	32.2%	35.9%	29.9%
No on CPT	252	257	206
No on ART	224	254	202
IPT among under fives	0	33	83

Previously treated	79.1%	0%	12.5%	4.1%	0%
EPTB	86.3%	0%	1.4%	12.3%	0%
Total	89.2%	0.1%	3.1%	6.3%	0.1%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriological-ly confirmed	89.7%	0.3%	3.9%		
5.1%	0.3%				
Clinical-ly diagnosed	93.5%	0%	2.4%	4.1%	0%

Figure 28: treatment outcome trends

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	52	125	177
BMI <18.5	68	154	222
BMI <16 and given food support	22	56	78
BMI <18.5 and given food support	8	49	57

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	1	3
*RR	2	0	1
PDR	0	0	0
Total	2	1	4

*** RR includes 2 MDRs in 2014**

NAROK COUNTY

	Narok	Kenya
Population	1,039,837	44,200,000
Urban Population	7%	29.9%
Population Density	58	76
Proportion of Males	50.3%	49.5%
Proportion of children <14	48%	41.6%
Proportion of elderly >65	2.25%	3.3%
HIV Prevalence	3.1%	5.9%
Poverty Headcount	34%	46%

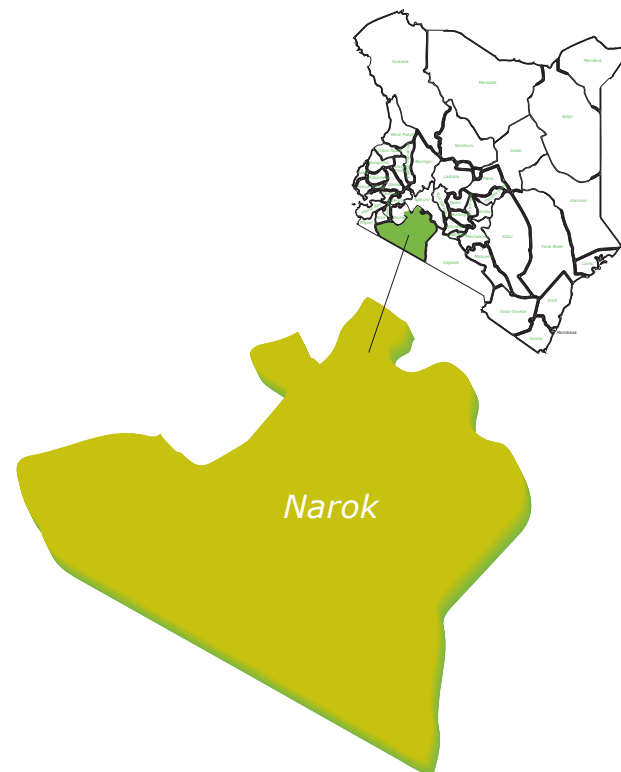


Table 2: Service delivery per county versus national

	Narok	Kenya
TB CNR	127	170
Number of TB Control zones	6	293
Proportion accessing diagnostic at initial seeking		45%
Proportion accessing treatment at initial seeking		45%
Number of AFB sites	45	2178
Number of Xpert sites	2	134
No of ART sites	71	3235
DR TB treatment sites	14	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	543(38%)	739(46%)	678(51%)
Clinically diagnosed	607(42%)	574(35%)	391(29%)
Previously treated	100(7%)	75(5%)	59(4%)
EPTB	186(13%)	236(15%)	211(16%)
TB among children < 15 (all forms)	197(14%)	187(12%)	161(12%)
Total	1436	1624	1339

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1372	1589	1302
TB/HIV co-infection rate	30.2%	27%	24.2%
No on CPT	431	433	321
No on ART	362	409	310
IPT % among under fives	2	20	40

Previously treated	83	0	11	6	1
EPTB	88	-	6	6	0

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Total	92	0	6	4	1
Bacterio- logically confirmed	91	0	7	3	1
Clinically diagnosed	90	-	5	5	1

Figure 29: treatment outcome trends

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	56	110	167
BMI <18.5	105	274	389
BMI <16 and given food support	55	138	194
BMI <18.5 and given food support	44	100	146

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	3	9	5
*RR	2	0	3
PDR	0	3	1
Total	5	12	9

***RR includes MDR, XDR and Pre XDR**

NYAMIRA COUNTY

	Nyamira	Kenya
Population	632,046	44,200,000
Urban Population	29.1%	29.9%
Population Density	702.4	76
Proportion of Males	48%	49.5%
Proportion of children <14	41.7%	41.6%
Proportion of elderly >65	3.3%	3.3%
HIV Prevalence	6.4%	5.9%
Poverty Headcount	50%	46

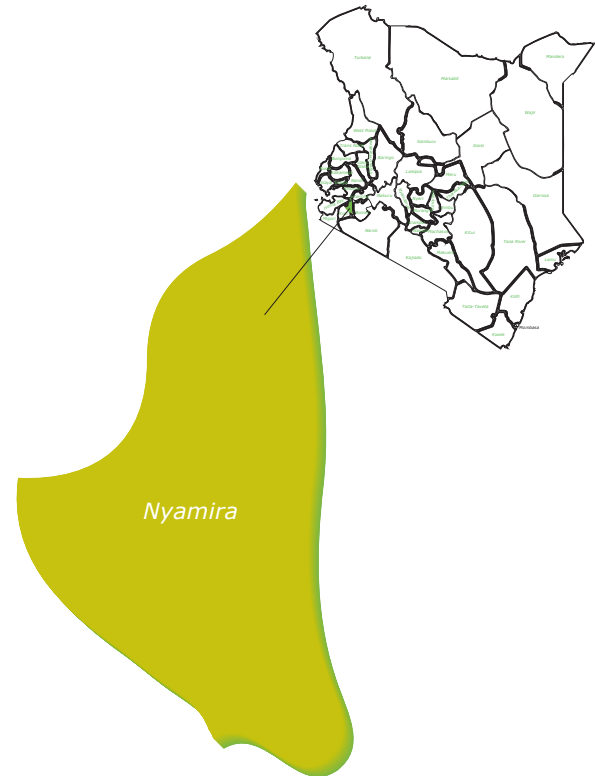


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	112	170
Number of TB Control zones	5	293
Proportion accessing diagnostic at initial seeking	62%	45%
Proportion accessing treatment at initial seeking	58%	45%
Number of AFB sites	63	2178
Number of Xpert sites	3	134
No of ART sites	136	3235
DR TB treatment sites	7	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	329(41%)	388(53%)	426(55%)
Clinically diagnosed	364(45%)	231(32%)	227(29%)
Previously treated	39(5%)	21(3%)	27(3%)
EPTB	74(9%)	88(12%)	96(12%)
TB among children < 15 (all forms)	61(8%)	46(6%)	46(6%)
Total	808	730	776

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	793	727	771
TB/HIV co-infection rate	37%	38%	35%
No on CPT	293	273	275
No on ART	278	268	274
IPT % among under fives	16	35	104

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Total	90	0.4	1	8.4	0.1
Bacteriologically confirmed	93	1	1	6	0
Clinically diagnosed	87	-	1	12	0

Previously treated	78	0	0	22	0
EPTB	82	-	2	16	1

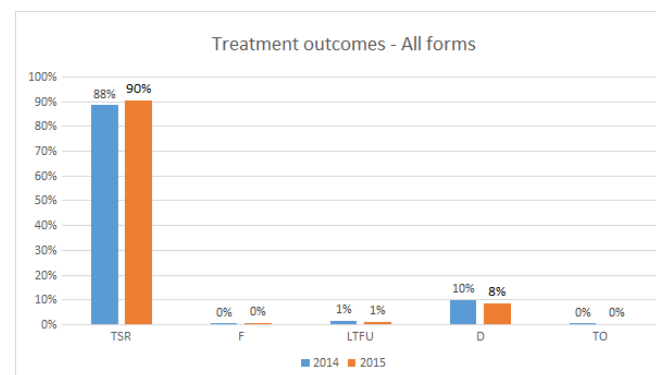
**Figure 30: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	26	36	62
BMI <18.5	90	124	214
BMI <16 and given food support	19	31	50
BMI <18.5 and given food support	42	54	96

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	2
*RR	3	5	1
PDR	0	0	0
Total	3	5	3

***RR includes MDR, XDR and Pre XDR**

NYANDARUA COUNTY

	County	Kenya
Population	596,268	44,200,000
Urban Population	24,958	29.9%
Population Density	183.7	76
Proportion of Males	49%	49.5%
Proportion of children <14	43.08%	41.6%
Proportion of elderly >65	4.46%	3.3%
HIV Prevalence	3%	5.9%
Poverty Headcount	49%	46%

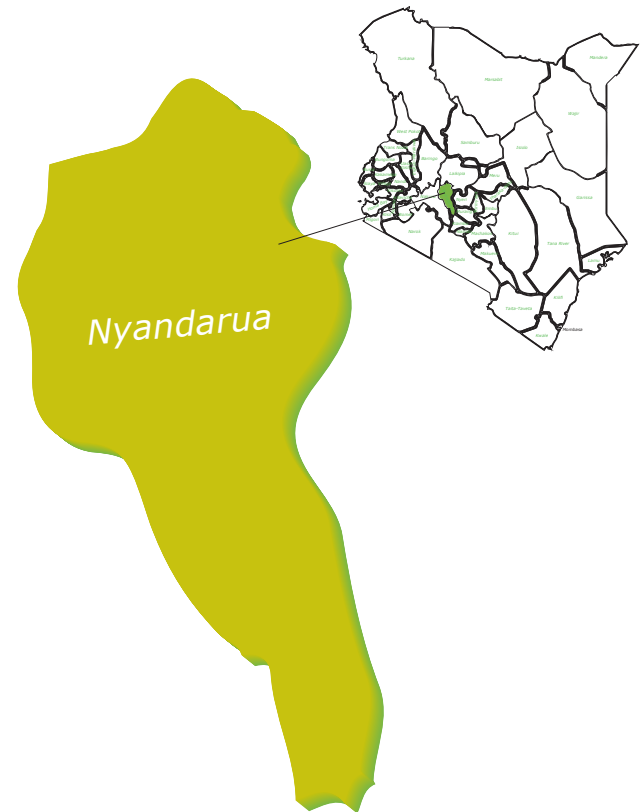


Table 2: Service delivery per county versus national

	Nyandarua	Kenya
TB CNR	94	170
Number of TB Control zones	5	293
Proportion accessing diagnostic at initial seeking	48%	45%
Proportion accessing treatment at initial seeking	41%	45%
Number of AFB sites	43	2178
Number of Xpert sites	2	134
No of ART sites	36	3235
DR TB treatment sites	6	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	291(36%)	314(42%)	333(52%)
Clinically diagnosed	312(39%)	314(42%)	161(25%)
Previously treated	72(9%)	63(8%)	35(5%)
EPTB	130(16%)	146(20%)	111(17%)
TB among children < 15 (all forms)	64(8%)	53(7%)	53(8%)
Total	805	744	640

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	801	743	636
TB/HIV co-infection rate	35.4%	37.5%	33.6%
No on CPT	284	279	215
No on ART	264	271	213
IPT % among under fives	14	9	51

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Total	88	0.1	3	8.4	0
Bacterio- logically confirmed	92	0	3	5	0
Clinically diagnosed	85	0	3	11	0

Previously treated	77	1	7	14	0
EPTB	86	0	3	11	0

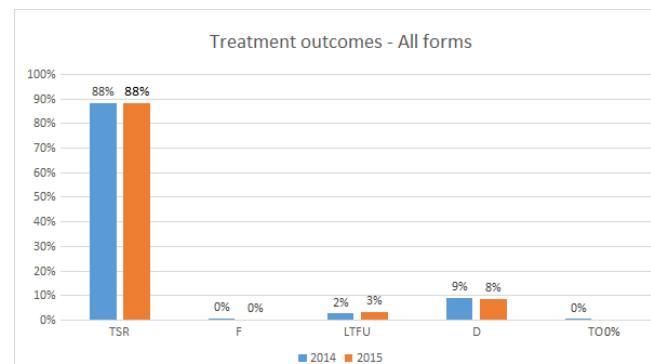
**Figure 31: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	51	87	138
BMI <18.5	52	121	173
BMI <16 and given food support	40	46	86
BMI <18.5 and given food support	39	78	117

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	0
*RR	0	5	2
PDR	0	0	0
Total	0	5	2

***RR includes MDR, XDR and Pre XDR**

NYERI COUNTY

	County	Kenya
Population	693,558	44,200,000
Urban Population	89,428	29.9%
Population Density	207.8	76
Proportion of Males	49%	49.5%
Proportion of children <14	33.8%	41.6%
Proportion of elderly >65	6.5%	3.3%
HIV Prevalence	3.4%	5.9%
Poverty Headcount	31	46%

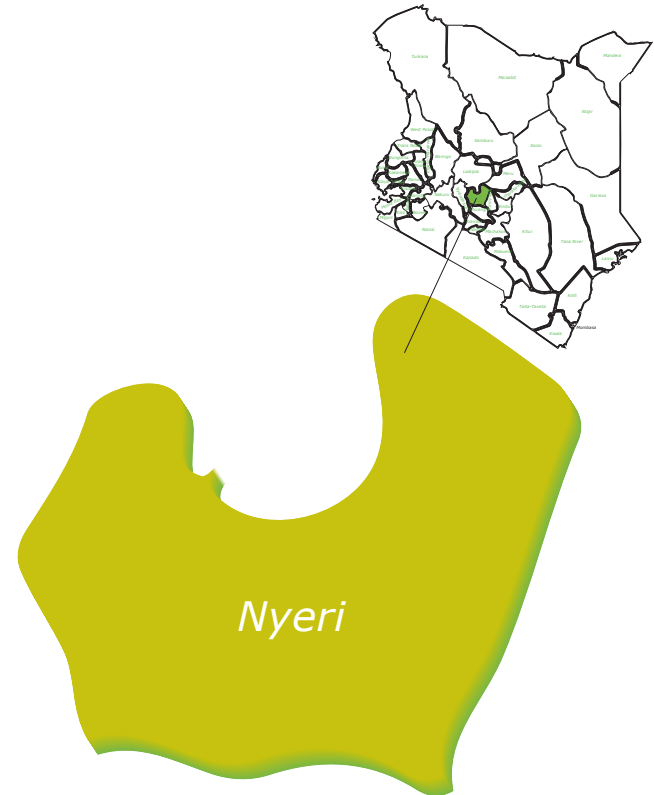


Table 2: Service delivery per county versus national

	Nyeri	Kenya
TB CNR	128	170
Number of TB Control zones	5	293
Proportion accessing diagnostic at initial seeking		45%
Proportion accessing treatment at initial seeking		45%
Number of AFB sites	57	2178
Number of Xpert sites	2	134
No of ART sites	42	3235
DR TB treatment sites	11	792

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	499(37%)	592(45%)	587(57%)
Clinically diagnosed	483(36%)	313(24%)	165(16%)
Previously treated	127(9%)	162(12%)	117(11%)
EPTB	234(17%)	253(19%)	177(17%)
TB among children < 15 (all forms)	83(6%)	67(5%)	68(7%)
Total	1342	1320	1021

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1311	1302	1002
TB/HIV co-infection rate	32.6%	30.5%	29.7%
No on CPT	425	395	291
No on ART	396	373	277
IPT % among under fives	4	60	65

Previously treated	82	1.7	5	11	1
EPTB	89	0	2	9	3

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Total	89	0.6	3	6.8	2.3
Bacterio- logically confirmed	91	1	5	3	3
Clinically diagnosed	87	0	2	11	2

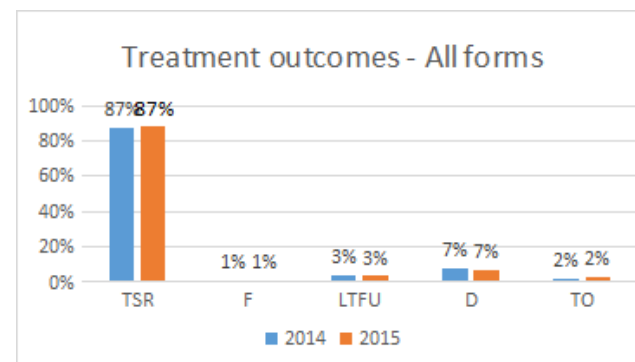
**Figure 32: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	48	80	129
BMI <18.5	81	218	304
BMI <16 and given food support	30	48	78
BMI <18.5 and given food support	25	53	78

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	1	2	0
*RR	2	3	6
PDR	2	0	0
Total	5	5	6

***RR includes MDR, XDR and Pre XDR**

SAMBURU COUNTY

	Samburu	Kenya
Population	273,804	43,726,652
Urban Population	17%	29.9%
Population Density	12	75
Proportion of Males	50	49.6
Proportion of children <14	48	42%
Proportion of elderly >65	3%	3.3%
HIV Prevalence	2.2%	6.04%
Poverty Headcount	78	46

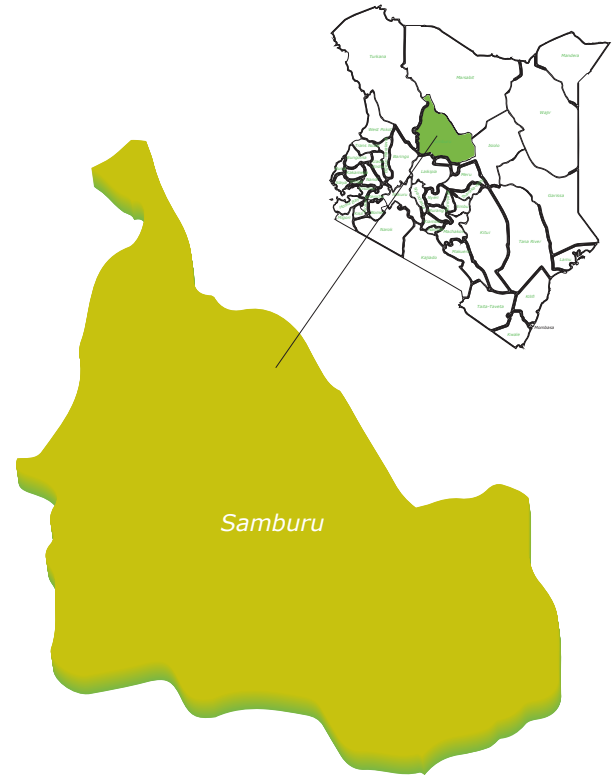


Table 2: Service delivery per county versus national

	Samburu	Kenya
TB CNR	208	170
Number of TB Control zones	3	290
Treatment/100,000	8.8	7
Proportion accessing diagnostic at initial seeking	41%	45%
Proportion accessing treatment at initial seeking	49%	45%
Number of Xpert sites	1	134
Number of AFB sites	5	2436
No of ART sites	74	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	231(43%)	287(49%)	263(46%)
Clinically diagnosed	263(49%)	268(45%)	288(51%)
Previously treated	43(8%)	35(6%)	19(3%)
EPTB	50(9%)	69(12%)	61(11%)
TB among children < 15 (all forms)	67(12%)	69(12%)	71(12%)
Total	537	590	570

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	518	571	536
TB/HIV co-infection rate	27%	21%	21%
No on CPT	141	124	117
No on ART	129	117	116
IPT % among under fives	9%	100%	86%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacterio- logically con- firmed	87%	0.5%	6.5%	6%	0%
Clinically diag- nosed	87%	0%	4%	8%	0%
Previously treated	74%	3%	9%	14%	0%

EPTB	88%	0%	4%	7%	0%
Total	87%	0%	6%	7%	0%

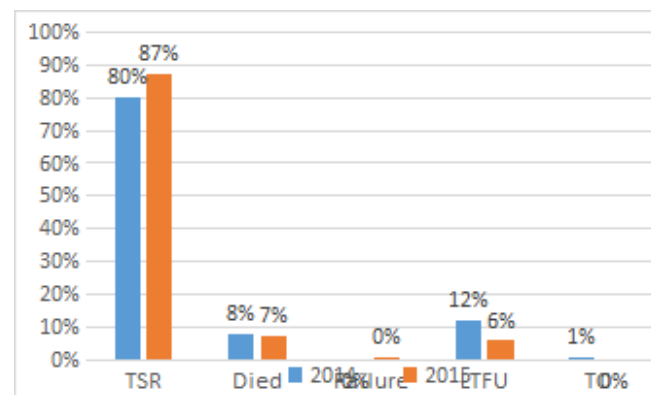
**Figure 33: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	58	128	186
BMI <18.5	30	145	175
BMI <16 and given food support	20	54	74
BMI <18.5 and given food support	5	34	39

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	2
*RR	2	0	6
PDR	0	0	0
Total	2	0	8

*** RR includes 2 and 4 MDRs in 2014 and 2016 respectively**

SIAYA COUNTY

	Siaya	Kenya
Population	963,007	43,726,652
Urban Population	17%	29.9%
Population Density	12	75
Proportion of Males	47%	49.6
Proportion of children <14	44%	42%
Proportion of elderly >65	5%	3.3%
HIV Prevalence	24.8%	6.04%
Poverty Headcount	78	46

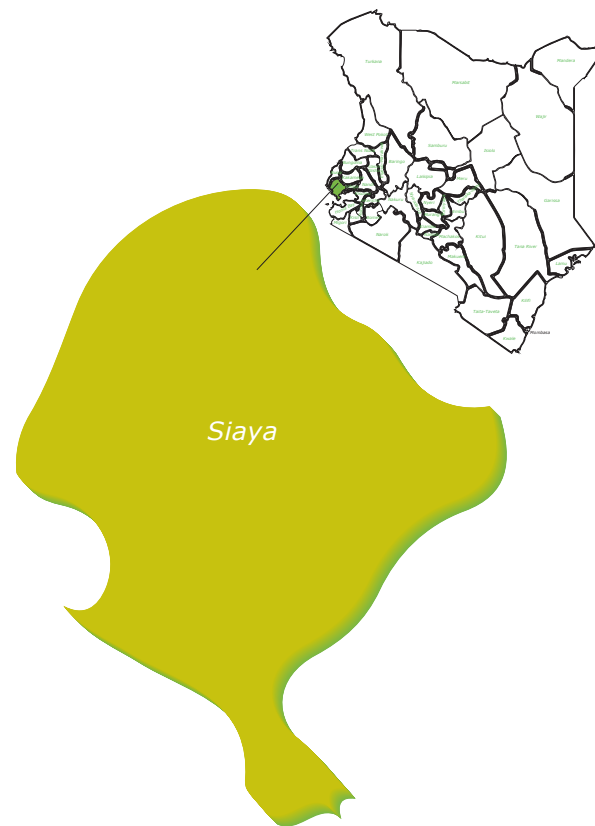


Table 2: Service delivery per county versus national

	Siaya	Kenya
TB CNR	171	170
Number of TB Control zones	6	290
Treatment/100,000	13.8	7
Proportion accessing diagnostic at initial seeking	65%	45%
Proportion accessing treatment at initial seeking	67%	45%
Number of Xpert sites	3	134
Number of AFB sites	79	2436
No of ART sites	142	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
New Bacterio- logically confirmed	767(34%)	882(46%)	964(58%)
New Clinically diagnosed	1254(55%)	870(45%)	570(34%)
Previously treated	239(11%)	181(9%)	123(7%)
EPTB	396(18%)	275(14%)	216(13%)
TB among children < 15 (all forms)	221(10%)	151(8%)	109(7%)
Total	2260	1933	1657

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	2235	1917	1648
TB/HIV co-infection rate	68%	66%	63%
No on CPT	1532	1276	1040
No on ART	1489	1251	1021
IPT % among under fives	19%	67%	79%

Previously treated	75%	1%	11%	11%	2%
EPTB	81%	0%	4%	13%	1%
Total	82%	1%	5%	10%	2%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	84%	2%	5%	7%	2%
Clinically diagnosed	81%	0%	4%	14%	1%

Figure 34: treatment outcome trends

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	195	64	259
BMI <18.5	357	199	556
BMI <16 and given food support	52	14	66
BMI <18.5 and given food support	165	94	259

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	3	8	8
*RR	8	2	6
PDR	0	0	0
Total	11	10	14

*** RR includes 8, 2 and 6 MDRs in 2014, 2015 and 2016 respectively**

TAITA TAVETA COUNTY

	Taita taveta	Kenya
Population	347,195	43,726,652
Urban Population	23%	29.9%
Population Density	15	75
Proportion of Males	51%	49.6
Proportion of children <14	37%	42%
Proportion of elderly >65	5%	3.3%
HIV Prevalence	6.3%	6.04%
Poverty Headcount	55	46

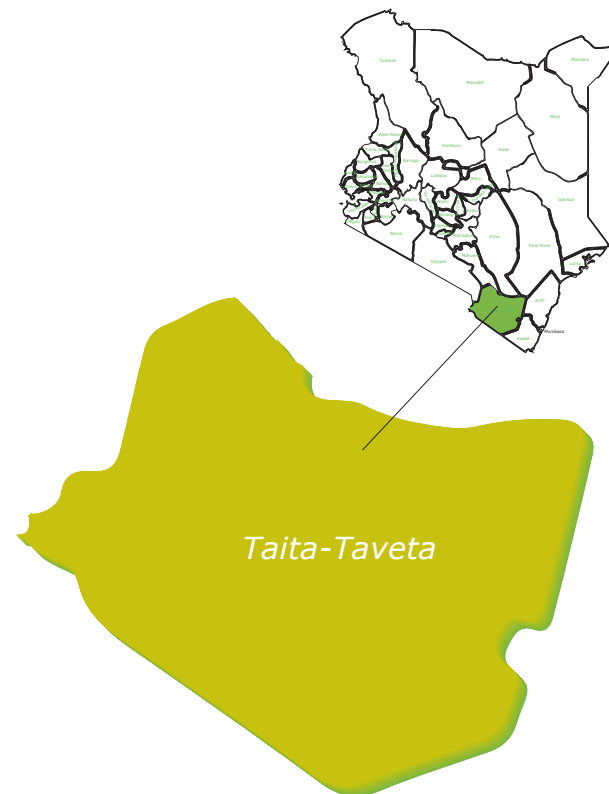


Table 2: Service delivery per county versus national

	Taita taveta	Kenya
TB CNR	151	170
Number of TB Control zones	3	290
Treatment/100,000	21.5	7
Proportion accessing diagnostic at initial seeking	62%	45%
Proportion accessing treatment at initial seeking	52%	45%
Number of Xpert sites	2	134
Number of AFB sites	48	2436
No of ART sites	50	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	238(41%)	245(49%)	318(60%)
Clinically diagnosed	260(45%)	216(43%)	184(35%)
Previously treated	77(13%)	43(9%)	30(6%)
EPTB	94(16%)	68(13%)	54(10%)
TB among children < 15 (all forms)	51(9%)	58(12%)	54(10%)
Total	575	504	532

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	541	483	511
TB/HIV co-infection rate	37%	29%	28%
No on CPT	208	139	150
No on ART	185	131	142
IPT % among under fives	100%	1%	14%

Previously treated	81%	2%	5%	9%	2%
EPTB	83%	0%	1%	14%	1%
Total	85%	1%	4%	8%	2%

Table 5: Type of TB and their outcomes (2016)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacterio- logically con- firmed	86%	1%	6%	4%	3%
Clinically diag- nosed	83%	0%	2%	13%	2%

Figure 35: treatment outcome trends

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	33	54	87
BMI <18.5	37	107	144
BMI <16 and given food support	23	35	58
BMI <18.5 and given food support	31	58	89

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	2	5	1
*RR	0	2	3
PDR	0	0	1
Total	2	7	5

*** RR includes 2 and 2 MDRs in 2015 and 2016 respectively**

WEST POKOT COUNTY

	West Pokot	Kenya
Population	626,832	43,726,652
Urban Population	8%	29.9%
Population Density	64	75
Proportion of Males	50%	49.6
Proportion of children <14	50%	42%
Proportion of elderly >65	3%	3.3%
HIV Prevalence	1.5%	6.04%
Poverty Headcount	85	46

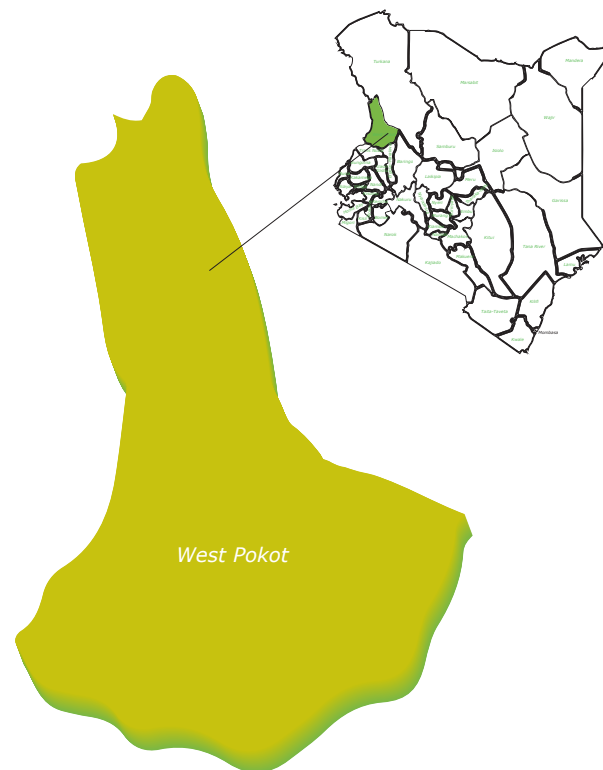


Table 2: Service delivery per county versus national

	West Pokot	Kenya
TB CNR	216	170
Number of TB Control zones	4	290
Treatment/100,000	4	7
Proportion accessing diagnostic at initial seeking	39%	45%
Proportion accessing treatment at initial seeking	33%	45%
Number of Xpert sites	2	134
Number of AFB sites	28	2436
No of ART sites	19	3235
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacteriologically confirmed	577(44%)	610(44%)	698(51%)
Clinically diagnosed	595(45%)	648(46%)	580(42%)
Previously treated	145(11%)	136(10%)	104(8%)
EPTB	280(21%)	257(18%)	229(17%)
TB among children < 15 (all forms)	223(17%)	246(18%)	237(17%)
Total	1317	1394	1382

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1126	1316	1318
TB/HIV co-infection rate	12%	11%	9%
No on CPT	153	153	117
No on ART	126	146	115
IPT % among under fives	27%	57%	88%

Table 5: Type of TB and their outcomes (2016)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriological-ly confirmed	82%	2%	11%	4%	0%
Clinical-ly diagnosed	86%	0%	9%	4%	0%

Previously treated	82%	1%	10%	4%	0%
EPTB	88%	0%	11%	5%	0%
Total	84%	1%	10%	4%	0%

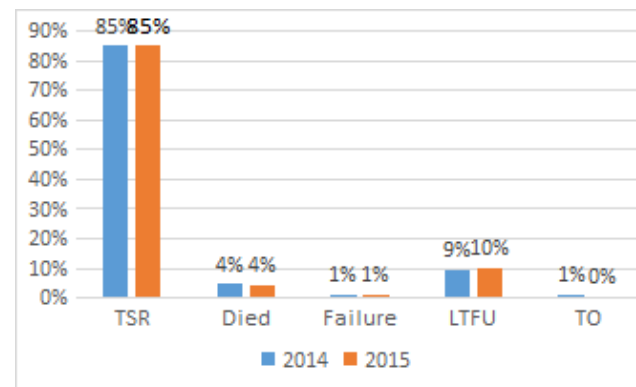
**Figure 36: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	43	302	345
BMI <18.5	39	305	344
BMI <16 and given food support	23	192	215
BMI <18.5 and given food support	32	241	273

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	1	4	2
*RR	1	6	5
PDR	0	1	1
Total	2	11	8

*** RR includes 1, 5 and 3 MDRs in 2014, 2015 and 2016 respectively**

TANA RIVER COUNTY

	County	Kenya
Population	292,885	44,156,577
Urban Population	15	29.9
Population Density	7	76
Proportion of Males	146,006	21,886,676
Proportion of children <14	146,489	18,389,596
Proportion of elderly >65	7,932	1,450,862
HIV Prevalence	1.9%	5.85%
Poverty Headcount	29.9	19.0

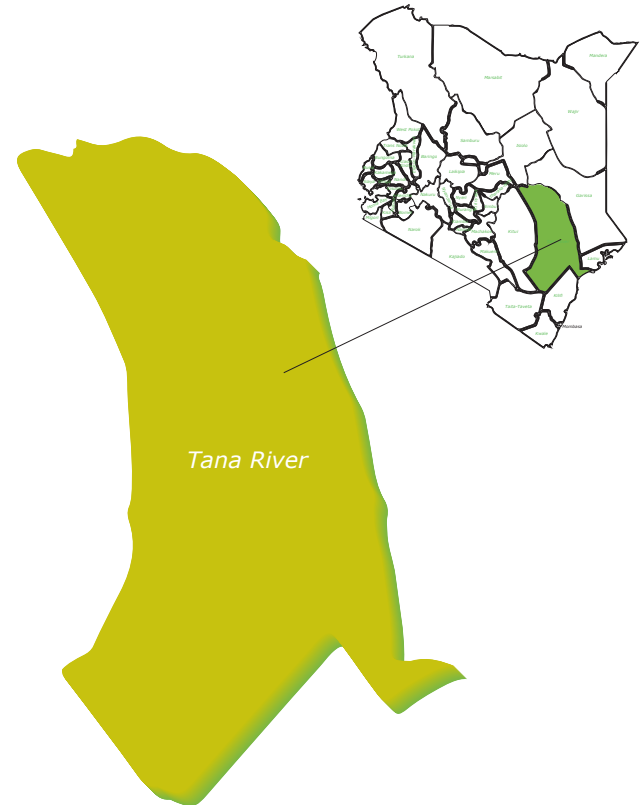


Table 2: Service delivery per county versus national

	Tana River	Kenya
TB CNR	146	170
Number of TB Control zones	3	289
Proportion accessing diagnostic at initial seeking	53%	45%
Proportion accessing treatment at initial seeking	41%	45%
Number of Xpert sites	1	134
No of ART sites	22	3235
DR TB treatment sites	1	606

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	173(46%)	194(48%)	257(59%)
Clinically diagnosed	206(54%)	213(52%)	176(41%)
Previously treated	28(7%)	32(8%)	9(2%)
EPTB	50(13%)	55(14%)	59(14%)
TB among children < 15 (all forms)	35(9%)	58(14%)	48(11%)
Total	379	407	433

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	367	393	421
TB/HIV co-infection rate	11%	12%	11%
No on CPT	39	45	46
No on ART	37	45	44
IPT % among under fives			

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	83%	0.5%	6%	6%	4%
Clinically diagnosed	86%	0%	4%	8%	2%

Previously treated	78.1%	0.3%	4.9%	7.1%	2.7%
EPTB	93%	0%	2%	4%	2%
Total(All forms)	85%	0.3%	4.9%	7.1%	2.7%

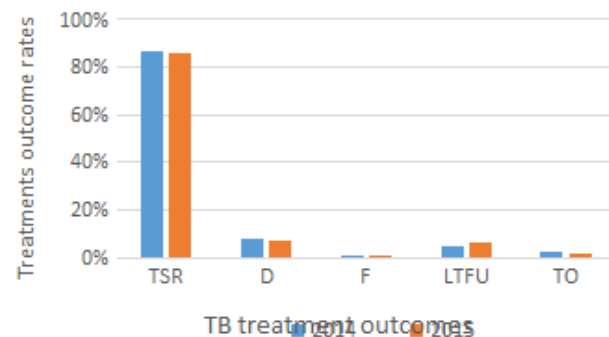
TB Treatment outcomes, Tana River 2014-2015**Figure 37: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	15	61	67
BMI <18.5	15	94	109
BMI <16 and given food support	4	19	23
BMI <18.5 and given food support	3	25	28

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	2
RR	0	0	0
PDR	0	0	0
Total	0	0	2

THARAKA NITHI COUNTY

	County	Kenya
Population	392,094	44,156,577
Urban Population	7	29.9
Population Density	152	76
Proportion of Males	193,580	21,886,676
Proportion of children <14	153,343	18,389,596
Proportion of elderly >65	20,690	1,450,862
HIV Prevalence	3.9%	5.85%
Poverty Headcount	12	19.0

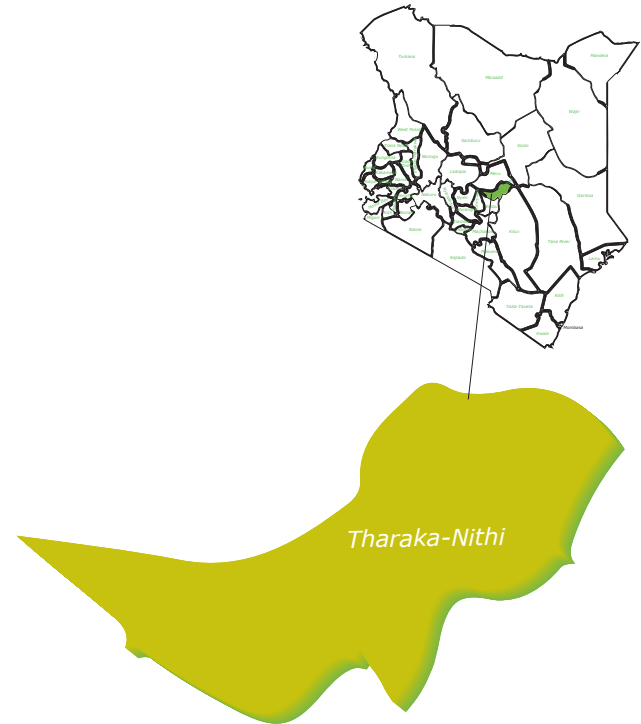


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	255	170
Number of TB Control zones	3	289
Proportion accessing diagnostic at initial seeking	29%	45%
Proportion accessing treatment at initial seeking	44%	45%
Number of Xpert sites	2	134
No of ART sites	22	3235
DR TB treatment sites	7	606

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	435(41%)	499(50%)	531(53%)
Clinically diagnosed	617(59%)	491(50%)	480(47%)
Previously treated	68(6%)	58(6%)	61(6%)
EPTB	202(19%)	161(16%)	207(20%)
TB among children < 15 (all forms)	175(17%)	115(12%)	163(16%)
Total	1052	990	1011

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1022	978	967
TB/HIV co-infection rate	22%	24%	23%
No on CPT	225	230	228
No on ART	216	231	227
IPT % among under fives			

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacterio- logically con- firmed	90%	1%	3%	2%	3%
Clinically diag- nosed	89%	0%	4%	5%	2%

Previously treated	69%	3.5%	10.3%	8.6%	8.6%
EPTB	91%	0%	4%	5%	0%
Total(All forms)	90%	0.7%	3.3%	3.7%	2.4%

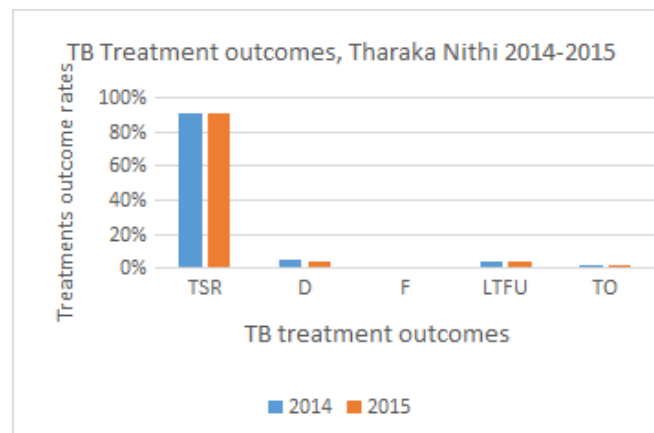
**Figure 38: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	39	70	109
BMI <18.5	55	184	239
BMI <16 and given food support	19	15	34
BMI <18.5 and given food support	13	22	35

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	3	2
*RR	0	0	2
PDR	0	0	0
Total	0	3	4

*** RR includes 2 MDRs in 2016**

TRANS NZOIA COUNTY

	County	Kenya
Population	1,001,005	44,156,577
Urban Population	20	29.9
Population Density	161	76
Proportion of Males	496,966	21,886,676
Proportion of children <14	446,436	18,389,596
Proportion of elderly >65	25,680	1,450,862
HIV Prevalence	5.2%	5.85%
Poverty Headcount	15.1	19.0

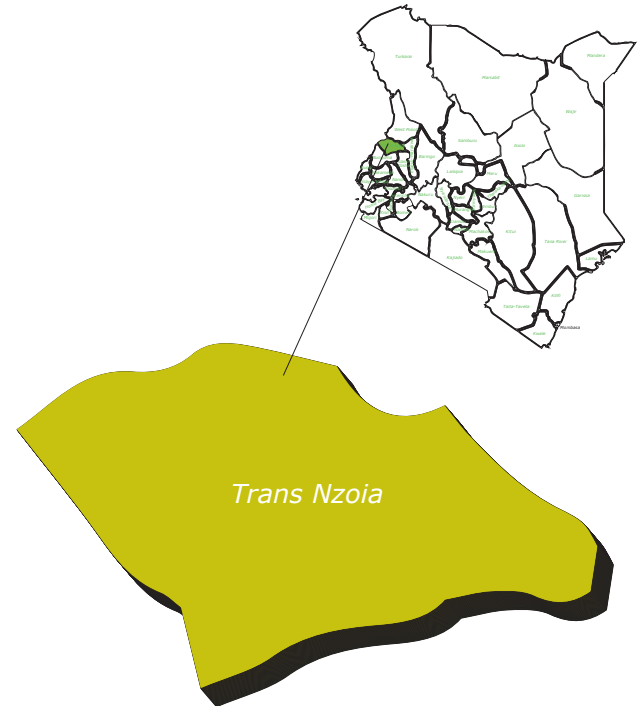


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	106	170
Number of TB Control zones	5	289
Proportion accessing diagnostic at initial seeking	22%	45%
Proportion accessing treatment at initial seeking	45%	45%
Number of Xpert sites	1	134
No of ART sites	22	3235
DR TB treatment sites	6	606

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	483(38%)	549(41%)	525(49%)
Clinically diagnosed	803(62%)	783(59%)	556(51%)
Previously treated	75(6%)	71(5%)	57(5%)
EPTB	156(12%)	155(12%)	181(17%)
TB among children < 15 (all forms)	145(11%)	179(13%)	96(9%)
Total	1286	1332	1081

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1135	1260	1050
TB/HIV co-infection rate	36%	34%	29%
No on CPT	386	427	316
No on ART	335	393	297
IPT % among under fives			

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	81%	1%	7%	4%	7%
Clinically diagnosed	82%	0%	5%	9%	4%

Previously treated	73%	1.4%	9.9%	8.5%	7%
EPTB	81%	0%	5%	9%	5%
Total(All forms)	82%	0.2%	5.6	6.8%	5.4%

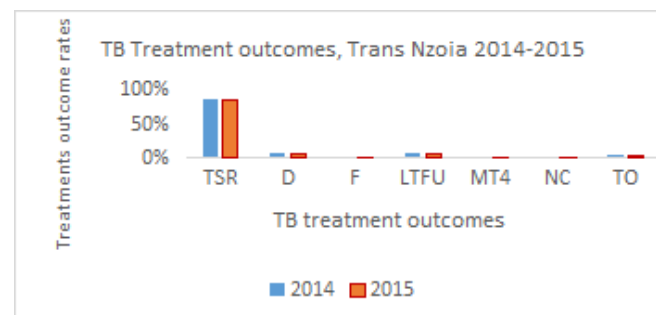
**Figure 39: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	60	102	162
BMI <18.5	100	199	299
BMI <16 and given food support	40	65	105
BMI <18.5 and given food support	47	75	123

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	1	0
*RR	1	1	3
PDR	0	0	0
MDR	1	0	3
Total	1	2	3

*** RR includes 1, 1 and 3 MDRs in 2014, 2015 and 2016 respectively**

TURKANA COUNTY

	County	Kenya
Population	1,045,579	44,156,577
Urban Population (%)	14%	29.9
Population Density	12	76
Proportion of Males	542,569	21,886,676
Proportion of children <14	453,330	18,389,596
Proportion of elderly >65	22,648	1,450,862
HIV Prevalence	4.0%	5.85%
Poverty Headcount	67.5	19.0



Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	169	170
Number of TB Control zones	6	289
Proportion accessing diagnostic at initial seeking	28%	45%
Proportion accessing treatment at initial seeking	29%	45%
Number of Xpert sites	1	134
No of ART sites	79	3235
DR TB treatment sites	3	606

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	587(33%)	1027(46%)	1052(59%)
Clinically diagnosed	1197(67%)	1222(54%)	742(41%)
Previously treated	58(3%)	80(4%)	65(4%)
EPTB	180(10%)	173(8%)	171(10%)
TB among children < 15 (all forms)	308(17%)	403(18%)	246(14%)
Total	1774	2249	1794

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1635	2152	1718
TB/HIV co-infection rate	24%	28%	27%
No on CPT	392	606	477
No on ART	378	602	468
IPT % among under fives			

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacterio- logically con- firmed	81%	1%	6%	2%	9%
Clinically diag- nosed	82%	0%	7%	2%	8%

Previously treated	73.7%	1.3%	5%	6.3%	13.8%
EPTB	86%	0%	5%	2%	7%
Total (All forms)	82%	0.6%	6.4%	2.2%	8.9%

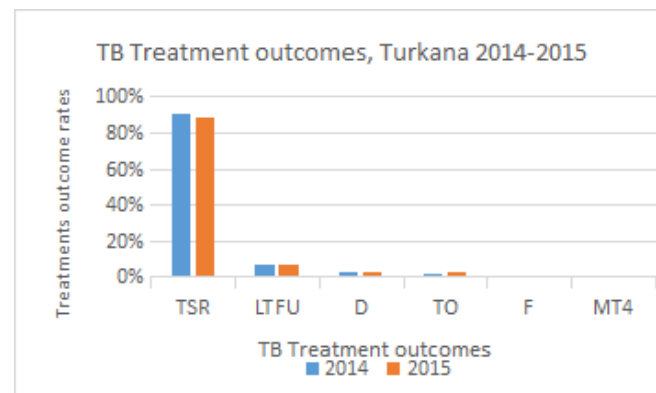
**Figure 40: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	211	395	606
BMI <18.5	109	336	445
BMI <16 and given food support	142	187	329
BMI <18.5 and given food support	63	117	180

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	4	11
*RR	5	2	8
PDR	0	0	0
Total	5	6	19

*** RR includes 5, 2 and 8 MDRs in 2014, 2015 and 2016 respectively**

UASIN GISHU COUNTY

	Uasin Gishu	Kenya
Population	1,092,803	43,726,652
Urban Population	39%	29.9%
Population Density		75
Proportion of Males	50	49.6
Proportion of children <14	39%	42%
Proportion of elderly >65		3.3%
HIV Prevalence	4.7	6.04%
Poverty Headcount	11,4	46

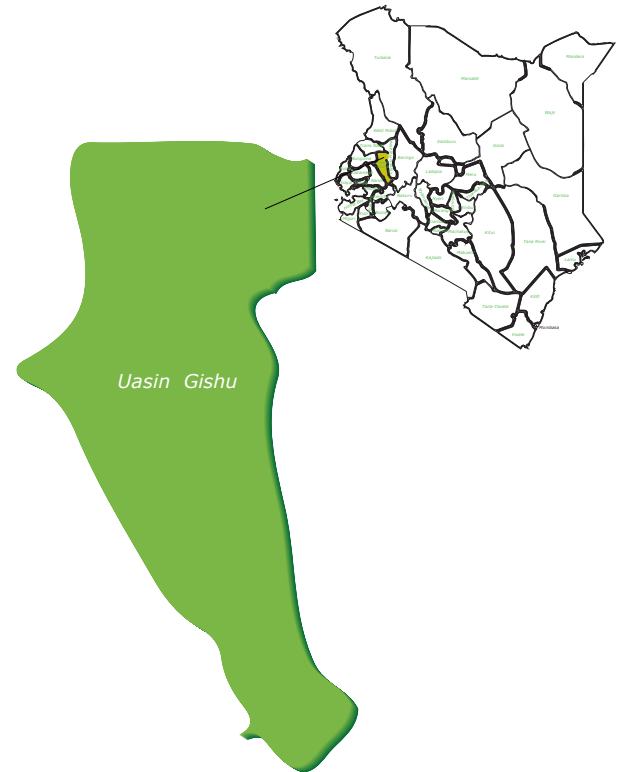


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	134	170
Number of TB Control zones		
Treatment/100,000		
Proportion accessing diagnostic at initial seeking	47%	45%
Proportion accessing treatment at initial seeking	40%	45%
Number of Xpert sites	2	134
Number of AFB sites	51	2436
No of ART sites		
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	751(42%)	753(46%)	790(55%)
Clinically diagnosed	917(52%)	791(49%)	697(48%)
Previously treated	103(6%)	81(5%)	71(5%)
EPTB	353(20%)	318(20%)	257(18%)
TB among children < 15 (all forms)	128(7%)	117(7%)	134(9%)
Total	1771	1625	1446

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	1638	1562	1375
TB/HIV co-infection rate	40%	40%	32%
No on CPT	692	650	461
No on ART	702	651	459
IPT % among under fives	82%	80%	78%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacterio- logically con- firmed	89%	1%	6%	2%	2%
Clinically diag- nosed	89%	0%	4%	6%	1%

Previously treated	81%	2%	6%	9%	1%
EPTB	90%	0%	2%	5%	1%
Total	89%	0.5%	5%	4%	1%

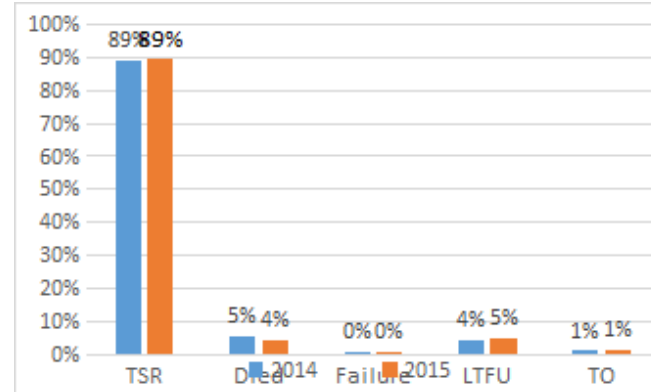
**Figure 41: Treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	85	98	183
BMI <18.5	127	225	352
BMI <16 and given food support	55	49	104
BMI <18.5 and given food support	62	79	141

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	1	0	2
*RR	7	5	8
PDR	1	0	1
Total	9	5	11

*** RR includes 7, 5 and 8 MDRs in 2014, 2015 and 2016 respectively**

VIHIGA COUNTY

	Vihiga	Kenya
Population	615,734	43,726,652
Urban Population	31%	29.9%
Population Density		75
Proportion of Males	44	49.6
Proportion of children <14	44	42%
Proportion of elderly >65		3.3%
HIV Prevalence	4.7	6.04%
Poverty Headcount	11.9	46

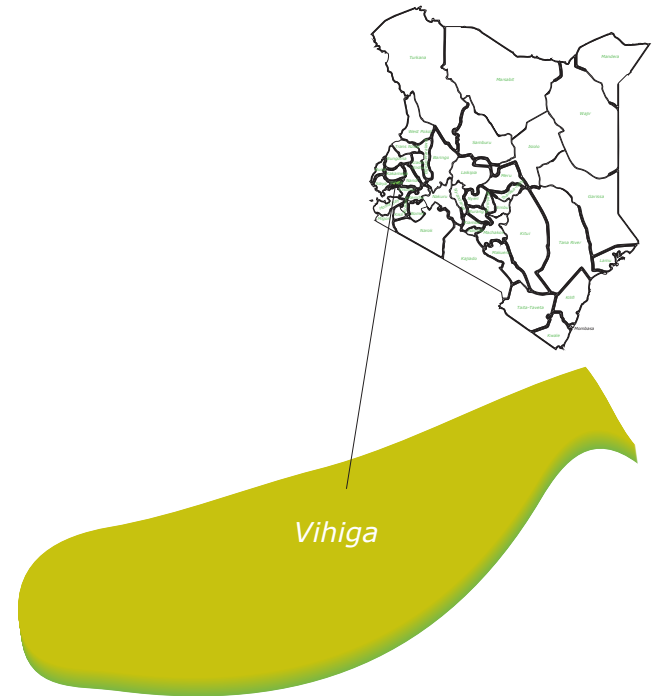


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	130	170
Number of TB Control zones		
Treatment/100,000		
Proportion accessing diagnostic at initial seeking	46%	45%
Proportion accessing treatment at initial seeking	60%	45%
Number of Xpert sites	2	134
Number of AFB sites	34	2436
No of ART sites		
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio- logically confirmed	369(36%)	326(40%)	507(62%)
Clinically diagnosed	526(51%)	393(48%)	316(39%)
Previously treated	144(14%)	99(12%)	54(7%)
EPTB	195(19%)	130(16%)	69(8%)
TB among children < 15 (all forms)	54(5%)	57(7%)	64(8%)
Total	1039	818	820

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	978	795	805
TB/HIV co-infection rate	41%	44%	43%
No on CPT	424	357	350
No on ART	408	348	343
IPT % among under fives	69%	42%	65%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacterio- logically con- firmed	89%	1%	5%	5%	0%
Clinically diag- nosed	86%	0%	3%	11%	0%

Previously treated	85%	0%	10%	5%	0%
EPTB	84%	0%	4%	12%	0%
Total	88%	0.5%	4%	8%	0%

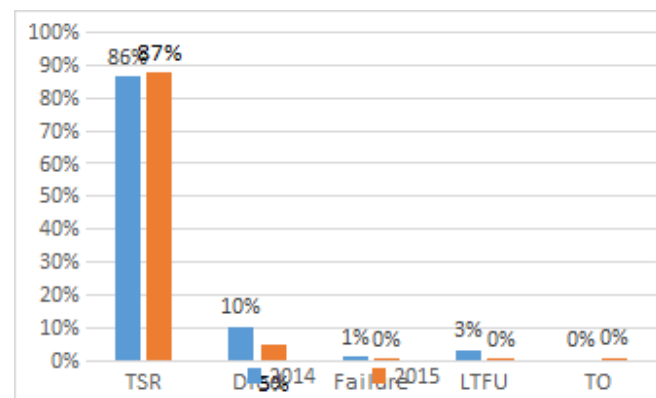
**Figure 42: treatment outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	60	53	113
BMI <18.5	88	127	215
BMI <16 and given food support	32	28	60
BMI <18.5 and given food support	30	44	74

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	1	2
*RR	3	3	1
PDR	1	0	0
Total	4	4	3

*** RR includes 3, 3 and 1 MDRs in 2014, 2015 and 2016 respectively**

WAJIR COUNTY

	Wajir	Kenya
Population	450,385	43,726,652
Urban Population	15%	29.9%
Population Density		75
Proportion of Males	52	49.6
Proportion of children <14	43%	42%
Proportion of elderly >65		3.3%
HIV Prevalence	0.4%	6.04%
Poverty Headcount	38.1	46

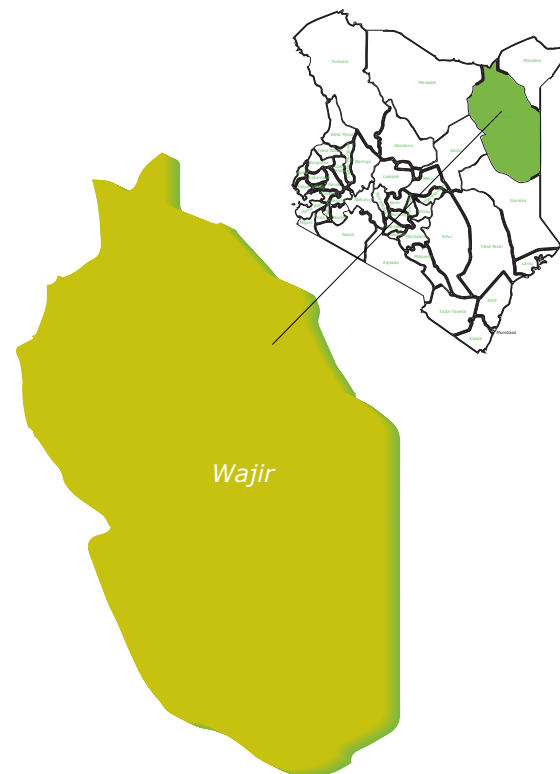


Table 2: Service delivery per county versus national

	County	Kenya
TB CNR	120	170
Number of TB Control zones		
Proportion accessing diagnostic at initial seeking	41%	45%
Proportion accessing treatment at initial seeking	24%	45%
Number of Xpert sites	1	134
Number of AFB sites	22	2436
No of ART sites		
DR TB treatment sites		

Table 3: TB case finding trends

Type of TB	2014	2015	2016
Bacterio-logically confirmed	263(44%)	278(52%)	310(60%)
Clinically diagnosed	293(49%)	229(43%)	237(46%)
Previously treated	43(7%)	31(6%)	11(2%)
EPTB	68(11%)	92(17%)	107(21%)
TB among children < 15 (all forms)	76(13%)	60(11%)	66(13%)
Total	599	538	520

Table 4: Trends of TB/HIV indicators

TB/HIV indicators	2014	2015	2016
No tested for HIV	584	521	488
TB/HIV co-infection rate	2.3%	1.9%	1.7%
No on CPT	13	10	9
No on ART	13	10	9
IPT % among under fives	0%	25%	26%

Table 5: TB outcomes (2015)

Type of TB	TSR (%)	Failure (%)	LTF (%)	Death (%)	TO (%)
Bacteriologically confirmed	93%	0%	0%	6%	1%
Clinically diagnosed	96%	0%	0%	4%	0%

Previously treated	87%	0%	0%	10%	3%
EPTB	95%	0%	0%	3%	0%
Total	94%	0%	0%	5%	0%

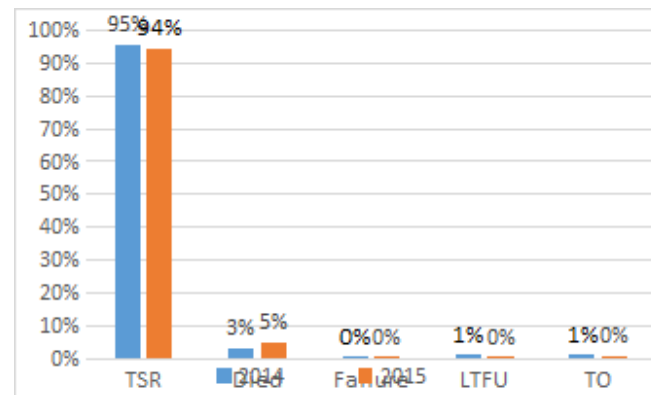
**Figure 43: Treatment Outcome trends**

Table 6: BMI categorization and food support given to TB patients

	HIV+	HIV -	Total
BMI <16	1	142	143
BMI <18.5	4	143	147
BMI <16 and given food support	0	44	44
BMI <18.5 and given food support	0	14	14

Table 7: Trends in DRTB patients reported

	2014	2015	2016
Mono-resistant	0	0	0
RR	0	0	0
PDR	0	0	0
Total	0	0	0



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