REPUBLIC OF KENYA

MINISTRY OF HEALTH

Annual Report 2014

In, 2014, there were **~90,000 TB cases** reported

4 Million Kenyans have Asthma

Success of the 2015-2018 NSP is largely dependent on the goodwill of partners & continued support from donors

133 reported cases of Leprosy nationwide

National Tuberculosis, Leprosy and Lung Disease Program (NTLD-Program)

Vision

To render Kenya and its communities free of TB, leprosy and lung disease

Mission

To sustain and improve TB, leprosy and lung disease control gains in order to accelerate the reduction of TB incidence, intensify post-elimination leprosy activities and control lung disease

Mandate

To formulate policies, set standards, identify and mobilize resources, ensure uninterrupted supply of commodities, supervise, coordinate, monitor and evaluate implementation of control activities

Goal

A generation free of TB, leprosy and lung disease

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ACKNOWLEDGEMENT

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Sincere appreciation goes to all TB Program Officers who have worked tirelessly to ensure that this report is assembled.

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LIST OF ABBREVIATION

AFB	Acid-Fast Bacilli
AMREF	African Medical and Research Foundation
ART	Anti-Retroviral Therapy
BMI	Body Mass Index
CDC	Centers for Disease Control and Prevention
CHS	Centre for Health Solutions - Kenya
CPT	Cotrimoxazole Preventive Therapy
CSO	Civil Society Organizations
DOTs	Direct Observe Therapy
DQA	Data Quality Audit
DRTB	Drug Resistant Tuberculosis
DST	Drug Susceptibility Testing
EPTB	Extra-Pulmonary Tuberculosis
EQA	External Quality Audit
GF	Global Fund
HFN	High False Negative
HFP	High False Positive
HIV	Human Immunodeficiency Virus
IEC	Information, Education and Communication
IOM	International Organization for Migration
IPC	Infection Prevention and Control
IPT	Isoniazid Preventive Therapy
JICA	Japan International Cooperation Agency
KAP	Knowledge Attitude and Practice
KAPTLD	Kenya Association for the Prevention of Tuberculosis and Lung Disease
KEMRI	Kenya Medical Research Institute
KEMSA	Kenya Medical Supplies Agency
KISLHC	Kenya International Scientific Lung Health Conference
KNH	Kenyatta National Hospital
LED FM	Light-Emitting Diode Fluorescence Microscopy
LFA	Local Funding Agency
LFN	Low False Negative
LFP	Low False Positive
LPA	Line Probe Assay
M&E	Monitoring and Evaluation
MB	Multi-Bacillary Leprosy
MDG	Millennium Development Goals
MDR	Multi Drug Resistant
MOTT	Mycobacterium Other Than Tuberculosis
NASCOP	National AIDS and STI Control Program
NTLD-P	National Tuberculosis, Leprosy and Lung Disease Program
NTRL	National Tuberculosis Reference Laboratory
OOC	Out of Control
OR	Operation Research
PB	Pauci- acillary Leprosy
PPM	Public Private Mix
PR	Principal Recipient
PTB-	Pulmonary Smear Negative
PTB+	Pulmonary Smear Positive
R-	Smear Negative Relapse
R+	Smear Positive Relapse
RAD	Return After Default
REP	Extra-Pulmonary Relapse
RFT	Released from Treatment
TA	Technical Assistance
TB	Tuberculosis
TB ARC	Tuberculosis Accelerated Response and Care
TB-SSF	TB Single Stream of Funding
TC	Treatment Complete
TO	Transfer Out
TSR	Treatment Success Rate
TST	Tuberculin Skin Test
WHO	World Health Organization

EXECUTIVE SUMMARY

In Kenya, respiratory disease conditions account for 25% of outpatient morbidity

Tuberculosis (TB) is a key priority communicable disease and a major public health problem in Kenya, a country of 45 million inhabitants. Kenya is currently ranked 15th among the 22 high TB burden countries of the world.

In 2014, the World Health Organisation (WHO) disease burden estimates as published in the Global Tuberculosis Report[1], expressed in rates per 100,000 population, were 283 (156-447) for prevalence and 268 (261-275) for incidence. Case detection of all forms stood at 75% (74-77%). The mortality rate for all forms of TB at 20 (12-27) per 100,000 population.

The year 2014 marked the second year of the devolution of health services to the 47 counties. There has been a notable decline in TB over the years with 89,294 cases notified in 2014. The treatment success rate among TB patients increased from 88% in 2013 to 88.3% in 2014 with adverse outcomes contributed by loss to follow up (5.3%) and deaths (3.4%).

Testing for HIV in TB patients has remained relatively stagnant at 94%, which is above the global average of 48% and 76% for the African region. A decline in the proportion notified TB- HIV co-infected patients continues to be noted, from as high as 45% in 2008 to 35% in 2014. This though lower than the TB/HIV co-infection rate of 41% in the African region is still high compared to the 13% Global TB/HIV co-infection rate. In Kenya, co-trimoxazole uptake is almost universal at 99%, which is above the 85% global and 87% African uptake. Uptake of ART in TB/HIV co- infected patients has greatly improved from a low of 30% in 2008 to 87% in 2014. The number of tuberculosis and rifampicin resistance cases detected using Xpert MTB/RIF has increased despite the low utilization. Drug resistant TB cases increased from 112 cases in 2010 to 288 cases in 2014 with paediatric cases accounting for 5.1% of the cases. The country recorded a high treatment success rate among MDRTB cases at 83%, higher than the WHO target of 75%.

Nutrition was identified as a major gap in patient care. Males were found to be more affected by malnutrition and TB than females. Malnutrition was also found to be higher among the HIV negative TB patients. The program was however able to provide nutritional support to those severely under nourished TB patients and counselling to most of them. Anthropometric equipment was distributed to TB clinics to facilitate weight and BMI monitoring.

Laboratory services have improved with the increase of Xpert MTB/RIF and culture services. There has been a downward trend of the total smear microscopy workload from 880,976 total smears done in 2012 to 717,616 (18.5% drop) in 2013 and 613,393(14.5% drop) in 2014. EQA coverage remained at 82 % (n=1,574) with an average concordance of 97 %.

In 2014, there were 133 cases diagnosed with leprosy. Despite an increase in new Leprosy cases being reported, limited funding continues to constraint activities.
In Kenya, respiratory disease conditions account for 25% of outpatient morbidity. The summary data collection sheets in the public health facilities mainly categorize respiratory tract conditions into three: pneumonia, tuberculosis and others. Pneumonia contributes 9% of hospital admissions while tuberculosis contributes 2%. Among the causes of mortality in the Kenyan population, pneumonia contributes to 12% and tuberculosis 5.5%.

Dr. Nicholas Muraguri

DIRECTOR OF MEDICAL SERVICES

1. INTRODUCTION

The National Tuberculosis, Leprosy and Lung Disease Program within the Ministry of Health is mandated to formulate policies, set standards, identify and mobilize resources, ensure uninterrupted supply of commodities, supervise, coordinate, monitor and evaluate implementation of TB, leprosy and lung disease control activities. The county governments provide actualization of TB, leprosy and lung health services.

The year 2014 marked the second year since the introduction of the devolved system of government in Kenya. Devolution has provided both opportunities and challenges to the health sector since it is a fully devolved function. This has meant that both levels of government rethink the way health has always been delivered and implemented. Some of the opportunities that devolution has brought include: focused delivery of services which has informed the development of national TB and HIV strategic plan that emphasizes on geographical focus in order to refocus the scarce resources to areas that show high burden of TB and HIV. The counties also employ health workforce resulting in an increase in the ratios required to meet international standards. In the initial stages, there was a challenge in coordination between the national TB program and county governments. This resulted in a temporary problem in the procurement of TB medicines since the funds, which traditionally had been given to KEMSA, were given to counties as part of their health budgets.

Besides all these teething challenges, both levels of government have continued to demonstrate immense commitment and support to TB control in the country. The Ministry of Health has continued to provide staffing to the National TB program. It has also stepped up advocacy for more resource allocation, which led to the National Treasury allocating approximately three hundred million to procure first line medicines and additional sixty six million for development in 2014. It has provided leadership in the area of engagement with stakeholders including the county governments in an effort to ensure that provision of TB services continues in order to safeguard gains made in TB and Leprosy Control. On the other hand, the county governments have done very well by dedicating officers at the county and sub -county levels and expansion of health facilities resulting in improved delivery of TB and Leprosy services. By the end of 2014, the country had over 3,300 facilities providing TB treatment, over 1,800 of the same facilities providing diagnostics services. There were also over 200 sites providing Drug resistance TB services.

The country continued to roll out TB services that were centred on the expansion of high quality DOTs that included improving the quality of TB and MDR TB diagnosis. In this regard, counties were provided with diagnostic equipment: 100 LED and light microscopes were procured. Capacity building of Lab staff, AFB refresher courses was done. EQA was also expanded during the year and over 90% of the facilities showed acceptable performance of 95% concordance on the sampled slides. To address the emergence of DRTB, new technologies were rolled out specifically GeneXpert. MDR TB surveillance was improved and drug resistant cases were enrolled on appropriate treatment as per the national policy. The main challenge however was that the multimillion isolation facility at KNH remained non-operational due to mechanical problems which need to be addressed urgently in order to provide services to the patients.

There was also more focus on childhood TB with special emphasis on building capacity of health care workers in diagnosis and management of paediatric TB. Operational research, capacity building and development of a mentorship program in collaboration with AMREF was also done. The private sector and communities were engaged in TB control activities more so in the provision of diagnostic services. In order to enhance accountability and transparency, the program continued to strengthen its routine reporting and evaluations. All the scheduled quarterly data review meetings in all the counties were carried out. A number of studies and surveys were either started or completed: drug resistant survey expected to be completed in 2015, inventory study, delay in TB diagnosis survey, data quality assessment focusing on 2014 reported cases in 6 counties and onsite data verification in some facilities in Siaya and Kwale counties.

The country revised its strategic plan that is expected to run until the end of 2018. The TB fraternity also participated in the development of the new concept note for funding by Global Fund, which is expected to be successful and start in mid-2015.

2. NATIONAL STRATEGIC PLAN 2015—2018

In 2014, the National Tuberculosis, Leprosy and lung Disease (NTLD) Program engaged in development of a four-year National Strategic Plan (NSP). To align this NSP with the national planning cycles, it was designed to run from 2015 to 2018. The NSP development process took cognizance of the current governance dispensation where health services are devolved to the 47 counties. Within the context of a newly devolved health system, the goal of the 2015-2018 NSP is to accelerate the reduction of TB, leprosy and lung disease burden through provision of people-centred, universally accessible, acceptable and affordable quality services in Kenya. The NSP was based on robust evidence generated from the Mid Term Review (MTR) of 2011-2015 NSP, the national case-based electronic data system, Tuberculosis Information from Basic Unit (TIBU), as well as results of small-scale pilot projects and operational research.

As a departure from previous strategic plans, the implementation of this NSP will be responsive to county specific needs. County interventions have been tailored to cluster epidemiological and programme performance contexts.

The success of this NSP implementation will largely depend on the goodwill of implementing partners and continued support from donors to bridge financing gaps. It is estimated that the NTLD Program will face **a financing gap of nearly Kshs 21.4 billion** over the implementation period of the NSP, which represents half of its required funding. The funding gap presents the financing that other stakeholders in the health sector need to come on board and fill.

Key Highlights of the 2015-2018 NSP

The NSP was developed through a transparent and all inclusive process that brought together the national government, county governments, donors and health partner organization and is based on 12 thematic areas

- Devolved implementation of activities and budgets
- Identification and treatment of all cases
- Engagement of all care providers (PPM)
- Promotion and strengthening of community engagement
- Enhancement of multi-sectoral response to TB/HIV
- Acceleration of appropriate diagnosis
- Ensured stable & quality supply of drugs, diagnostic tests and commodities
- Enhancement of evidence-based Programme monitoring and implementation
- Creation of an enabling environment
- Expansion of utilization of the Practical Approach to Lung Health (PAL)
- Prevention of transmission of TB disease through IPC, IPT and contact tracing
- Leprosy post elimination activities

The expected impacts by 2018 are:

- 5% reduction of TB incidence
- 3% reduction of mortality due to TB
- Reduction of proportion of affected families who face catastrophic costs due to TB, leprosy and other lung diseases
- 50% reduction of the proportion of cases with grade 2 morbidity due to leprosy
- Reduction of morbidity due to chronic lung diseases

3. SECTION REPORTS

3.1 Administration and Finance

The Administration, Human Resource and Finance section provides support to the technical sections of the National TB, Leprosy and Lung Disease Program and is composed of administration, human resource, accounts, and transport subsections.

A. Human Resource

Table 3.1.1: Staff at the National TB, Leprosy and Lung Disease Program

Staff	Total (December 2014)
Technical	17
Administration support	9
Drivers	7
Technical staff contracted under Staff/Project staff	9
Technical staff seconded by health partners/Seconded staff	3
Total	**45**

B. Capacity Building Activities—Training

Table 3.1.2: Training conducted at the Program in 2014

Type of training	Number trained	Target
Management trainings (Kenya School Government)	27	16
AFB refresher training	300	300
Paediatric TB training	425	450
TB Infection Prevention and Control	130	130
Xpert MTB/RIF	205	205
Practical Approach to Lung Health (PAL) Training	100	100
TB recording and reporting (TIBU phase two)	290	290
Operations Research	28	25

C. Finance

Table 3.1.3: Summary of sources of funding, expenditure and utilization rate for FY 2014/2015

Source of Funding	Amount Received	Expenditure	Variance	Utilization rate
GoK	1,998,727	1,985,000	13,727	99.31%
Global Fund	1,047,088,665	489,288,281.7	557,800,383.3	46.7%
TB ARC	204,016,824	196,351,584	7,665,240	96.2%
CDC	40,438,000	38,956,204	1,4817,96	96.3%
World Bank	2, 400, 000	2, 400, 000	0	100%
Total	**1,295,942,216**	**728,981,069.7**	**566,961,146.3**	**56.3%**

D. ISO 9001:2008 Quality Management System

This certification is a quality management system that the Ministry of Health embraced in the year 2009. In 2009 the NTLD-Program was selected by the Ministry of Health to pioneer the implementation of International Organization for Standards (ISO) 9001:2008 Quality management system. This led to the ISO certification of the program on October 23rd 2013. The following activities were undertaken in 2014 to support the implementation:

Table 3.1.4: Summary of ISO activities carried out in 2014

Activity	Target	Achieved
Top management review meetings	1	1
Internal quality audits	4	2
External quality audit	2	1
Sensitization of New NTLD staff	2	2
Refresher course on internal quality audit	1	1
Sensitization meeting for section heads on mandatory procedures	1	1

3.2 Policy Planning & Research

The policy and planning section guides in the development, implementation and monitoring of policies, guidelines and standard operating procedures to ensure that TB control activities are in line with acceptable global recommendations, are responsive to the needs of patients and that they take into consideration the national priorities. The section also ensures that TB control targets are set with clear activities and budgets that support these activities both short term and long term according to the national priorities.

A. Policy and Guidelines Reviewed/Developed in 2014

1. PMDT Guidelines: This guideline was reviewed to include Xpert MTB/RIF diagnosis policy, management of XDR-TB and the inclusion of regimen, patient follow up and side effect management charts
2. IPT guidelines: The IPT guidelines were developed to include standard operating procedures, job aids and roll out sensitization package
3. Community and Engage TB guidelines: This guideline was developed to merge community and engage TB guidelines that existed independently, inclusion of community socio determinants of TB, review to a more user-friendly document to the community and inclusion of IPC at community level
4. Nutrition TB guidelines: The guideline and training curriculum was reviewed and aligned to the existing nutrition guidelines in treatment of malnutrition and the WHO nutrition in TB guideline 2013
5. Xpert MTB/RIF algorithm: The algorithm was reviewed to include HIV-positive smear negative TB cases and children under five years exposed to smear positive TB cases
6. NTLD Operations Manual: This guideline was reviewed in order to align the content with the new constitutional dispensation in Kenya
7. Review of MDR-TB patient support for sustainability purposes
8. Discussions on phase out of category II retreatment cases regimen commenced.

B. Data Capture Tools Reviewed/Developed in 2014

- **Facility TB Register and patient record card**: The register was reviewed to accommodate the new WHO definitions and to include GeneXpert results.
- **Presumptive TB and Contact Register**: This was a new tool developed to facilitate recording of all presumptive TB cases at all points of care and contacts of smear positive TB cases to support contact tracing.
- **IPT Register and Patient appointment card**: Reviewed to include the new WHO definitions.
- **MDR TB Patient card, log book and treatment register**: These tools were reviewed to accommodate the new WHO definitions and to include GeneXpert results.
- **Supervision checklist**: The checklist was revised to a user-friendly version and to include managerial level of details. This was informed by feedback from county and sub county TB coordinators.

C. Joint TB/HIV Concept Note

One joint TB and HIV concept note was developed based on the national strategic plans of TB and HIV in response to the new Global Fund funding model. Various partners and stakeholders including the Ministry of Health (NASCOP, NACC, TB, Malaria and Community Health Units), representatives of civil society organizations including PLHIV, TB affected community and key affected populations, gender and human rights specialists from both the GOK, CSOs and other partners, technical Partners (CDC, USAID, UNAIDS and UNFPA, WHO), civil society implementing partners, the non-state Principle Recipients (Kenya Red Cross and AMREF) were involved in the process. The developed Concept Note was successfully presented to the Global Fund team in January 2015.

D. Operations Research

The Drug Resistant Survey commenced in 2014.

NTLD Program continued to enhance the capacity of the staff to conduct operations research with 55 officers trained through Global Fund support through by non-state principal recipient AMREF.

Listed below is a brief description of some of the operational researches conducted by program staff including abstracts presented at the 45th World Conference on Lung Health of the International Union against TB and Lung disease in Barcelona, Spain.

- **Under-Reporting of Smear Positive Tuberculosis Cases in Kenya**
  This study was conducted to quantify the level of under-reporting of smear positive TB cases to the national TB surveillance system in Kenya to inform and strengthen the national TB program. The key finding was that under-reporting of smear positive TB cases during the study period was high in Kenya at 24% (95% CI: 21-26%) with variations across counties ranging from 16%-34%. The study recommended improvement of TB surveillance at the point of diagnosis and strengthening of mechanisms that link diagnosed TB cases to treatment and care.

- **Effects of Nutritional Interventions on TB Treatment Outcomes in Kenya**
  The objective of the study was to determine if nutritional interventions to TB patients have improved TB treatment outcomes amongst malnourished patients. This study found out that nutritional support is a predictor of TB treatment outcomes. Nutritional counselling alone and in combination with micronutrients was found to significantly reduce unfavourable (deaths, failures) treatment outcomes. The study recommended enhancement of accessibility to nutritional assessment and support.

- **Use of National Electronic Database to Map TB Patients with Transfer Out outcome in Kenya**
  This study was done to determine the proportion of smear positive patients with a transfer out outcome who could be matched in the national database, determine the treatment outcomes among patients who recorded a transfer out outcome and establish the gaps in documentation of data for patients who were transferred out. Only 27% of the total transfer out cases were matched with 76% of them having a cured treatment outcome. Key gaps identified included documentation of names and patient type classification. The recommendation of the study was that patient referral system and health care workers capacity in documentation should be strengthened.

- **What Drives TB Epidemic in Kenya: County TB Profile**
  The purpose of the study was to determine factors associated with TB case notification rate (CNR) in Kenya beyond HIV prevalence. The study found out that human development index (HDI), facility accessibility, poverty, urbanization and population density were other factors associated with CNR. The study recommends that there should be alignment of efforts in the fight against TB to all risk factors.

- **Uptake of Partner Testing among Notified TB Cases in Kenya in 2013**
  This study was conducted to describe the uptake of partner testing among notified TB patients. The key findings were that 37.1% of notified TB cases had their partners tested for HIV and 5 % had their partners decline testing. The discordance rate among HIV+/TB patients was 22.3 % while among HIV-/ TB patients was 2%. Amongst TB/HIV+ patients whose partners were tested, 89.8 % of them were on ART as compared to 79.7 % of those whose partners had not been tested. This study recommended that further research should be undertaken to identify factors that affect uptake of partner testing and come up with mitigating measures.

- **Characteristics of Elderly TB patients in Kenya**
  This study was conducted to describe the characteristics of elderly TB patients (55 years and over) notified to the TB program in Kenya. Key findings were that in 2013, 11.2% of notified TB cases were patients above 55 years, 21% received food support, 19.5% were HIV positive, 30% were PTB smear positive cases and 19.5% were notified from the private sector. The study recommended that since a substantial proportion of notified TB cases are elderly, there is need for further research to identify their specific needs and come up with specific responsive measures to enhance their treatment outcomes.

- **Assessment of TB Performance Indicators: A Comparison of Public and Private Sectors In Kenya**
  This study compared the performance of private and public health facilities in Kenya. The findings of the study showed significant improvement in the private sector for most performance indicators and this could be due to the continued sensitization of the private sector. However, in most indicators, the performance is lower than the targeted rate for both sectors. The study has shown a great improvement of cases notified to the National TB Program through the private sector. There was not much difference in the TB/HIV indicators between the private and the public sector. Across all performance indicators measured at enrolment, the public sector seemed to perform better than the private sector but with a small margin. Treatment outcomes did not differ much between the two sectors. The TSR of new smear positive is higher in the private sector than the public sector by 1.3%. The analysis suggests that there is need for an effective intervention package that includes private providers, public health workers and the staff of the national TB program to ensure achievement of all the targets by both sectors.

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- Performance of clinicians in identifying TB as cause of death using verbal autopsy questionnaires in Siaya County, Kenya by S Gacheri et al, 2014
- Impact of advocacy and social mobilization on knowledge, attitude and practice on TB in Kenya by H K Kipruto et al, 2014
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- A baseline assessment of TB infection control practices in health facilities in Kenya by E Masini et al, 2014
- Kenya tuberculosis surveillance system: A case study of Treatment Information Basic Unit (TIBU) electronic data management system by A. Wairia et al, 2014
- The introduction of 2013 revised case definition and reporting framework: A case study in Kenya by F. Ngari et al, 2014

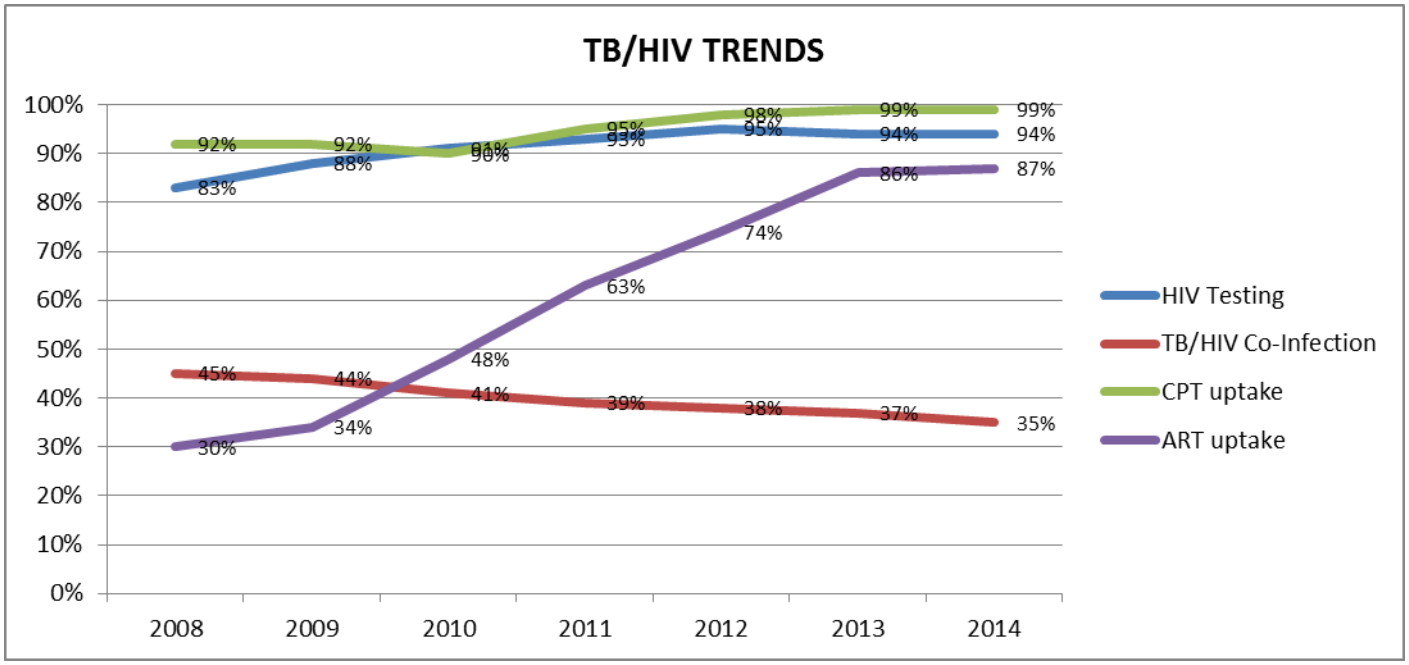
3.3 TB CARE Section

A. TB/HIV

There has been a gradual decline in the TB HIV co-infection rate among notified TB cases from 45% in 2008 to 35% in 2014. Though higher than the 13% global TB/HIV co-infection rate, it is lower than the 41% in the African region. Testing for HIV in TB patients has remained relatively stagnant at 94%, which is above the global average of 48% and 76% for the African region.

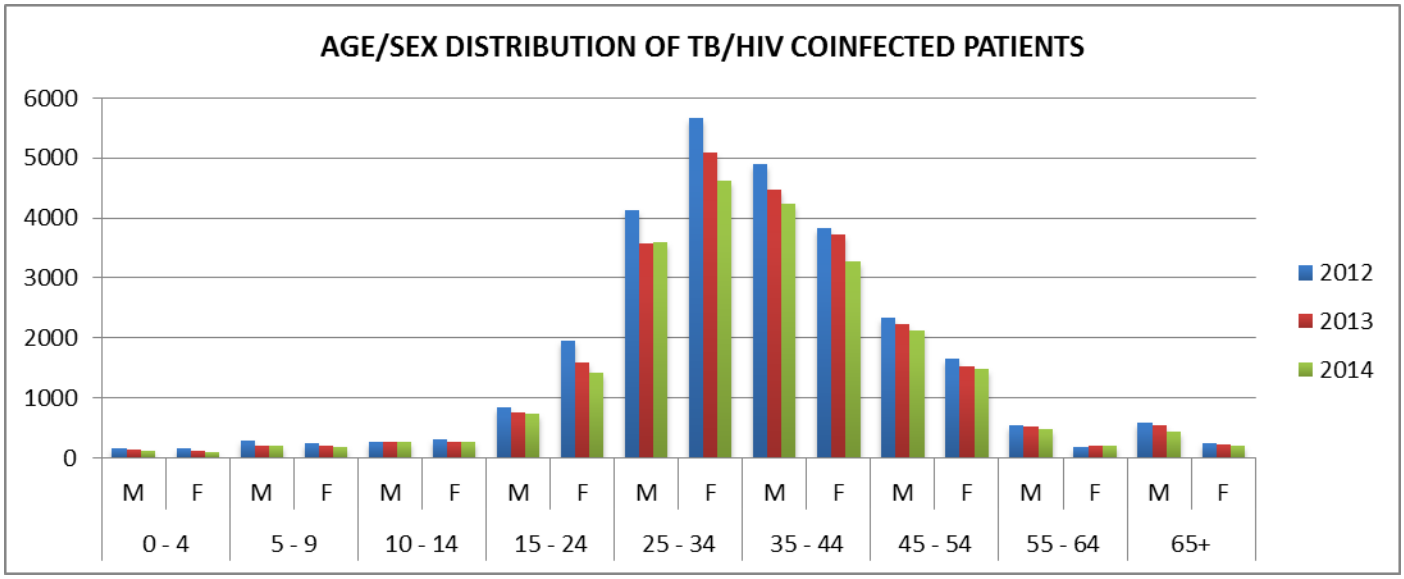
The co-trimoxazole uptake among TB-HIV co-infected patients was 99%, which is above the 85% global and 87% African uptake (WHO Global TB Report, 2014). Uptake of ART in TB/HIV co-infected patients has greatly improved from a low of 30% in 2008 to 87% in 2014.

Figure 3.3.1 Trends for Key TB/HIV indicators 2008-2014



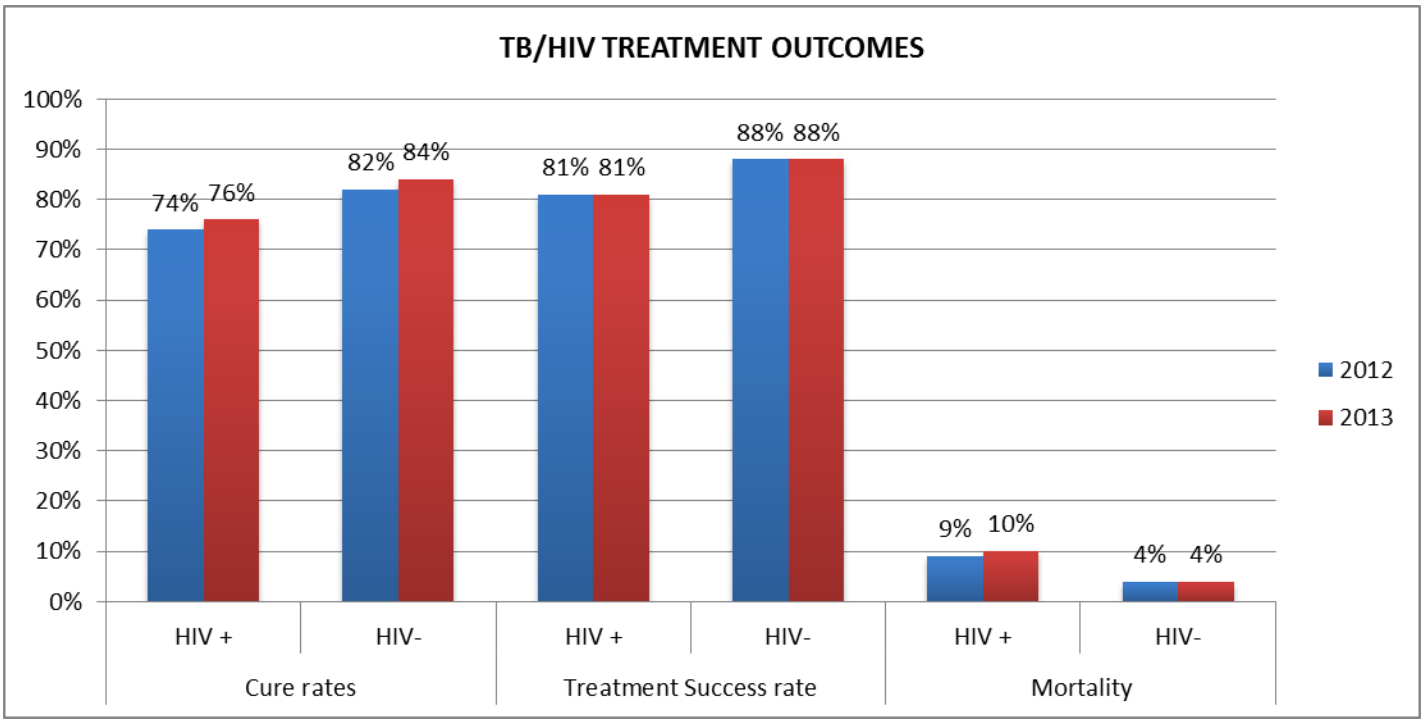
Though data for TB screening among PLHIV enrolled in care clinics is not available at the national level, patient charts review in selected health facilities in March 2014 showed that over 80% PLHIV were screened for TB during their last clinic visit. However, only 2% of PLHIV enrolled in care clinics were put on IPT in Kenya in 2014.

Figure 3.3.2 Age-sex distribution of TB/HIV co-infected patients 2012-2014



Majority of TB/HIV patients are between the ages of 25 to 44 years of age with females being more affected than males in the age brackets of 15 to 34 years and males more affected than females in the age brackets of 35 to 65 years of age. There has been a decline in case notification across all age groups for both males and females from 2012 to 2014. The greatest decline has been noted in females between 15 and 24 years of age and in both males and females in the age bracket of 25 to 34 years.

Figure 3.3.3 Treatment outcomes for TB/HIV patients in 2012 & 2013

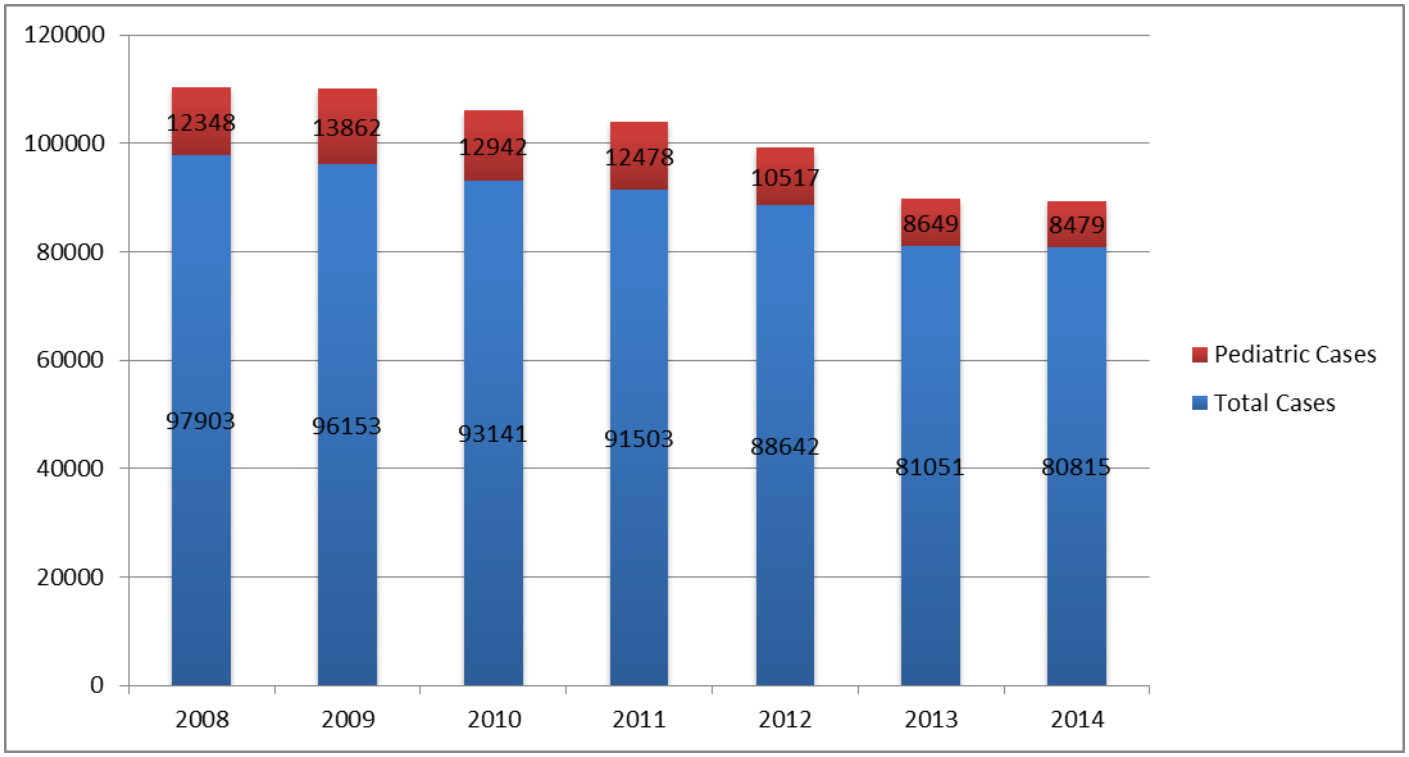


Cure rates of TB/HIV co-infected patients have improved from 74% to 76% in 2012 and 2013 respectively. This is commensurate to similar improvement among HIV negative patients from 82% to 84% in 2012 and 2013 respectively. Case fatality among notified TB/HIV co-infected patients was more than double at 10% than that in HIV negative TB patients which stood at 4% for patients reported in 2013. Despite a global decline in deaths due to HIV associated TB, in Kenya, TB deaths in PLHIV seems to be increasing while those among those who are HIV negative remains stagnant at 4%.

In 2014, previously treated TB patients had a higher HIV co-infection rate (44%) than newly enrolled TB cases (35%). The highest co-infection rate was among relapse smear negative pulmonary TB patients/EPTB at 53%. This could be attributed to possible misdiagnosis of other opportunistic infections wrongly labelled as TB, which requires further investigations.

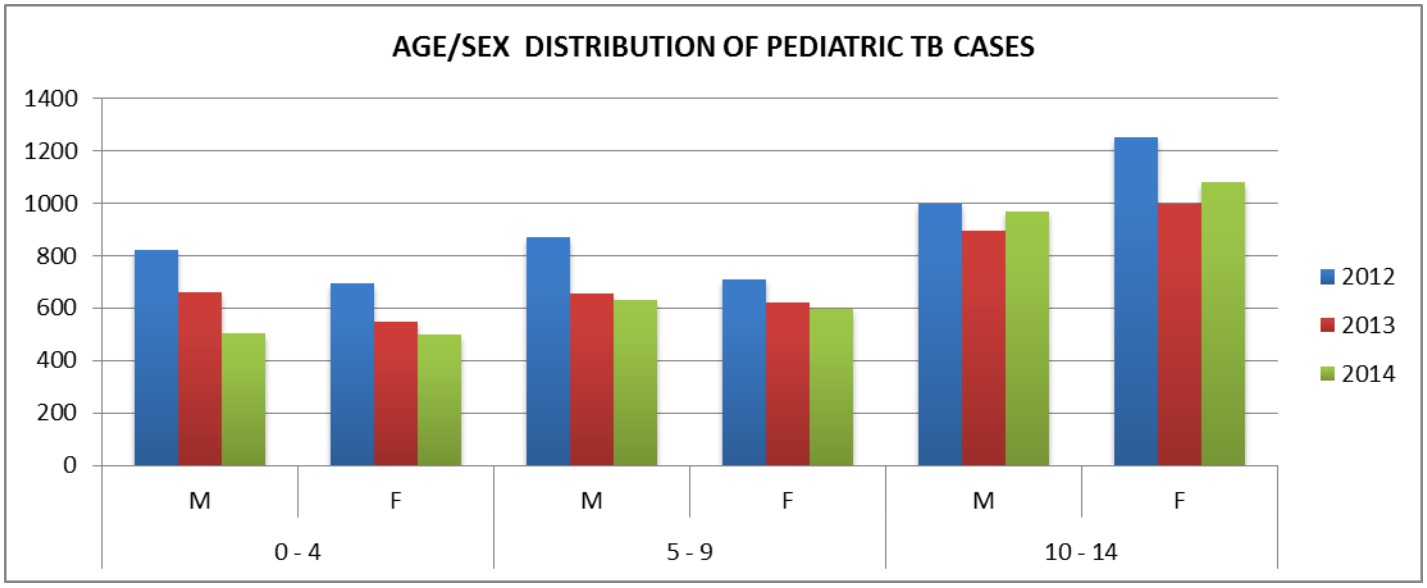
B. PEDIATRIC TB

Figure 3.3.4 Pediatric TB case finding 2008-2014



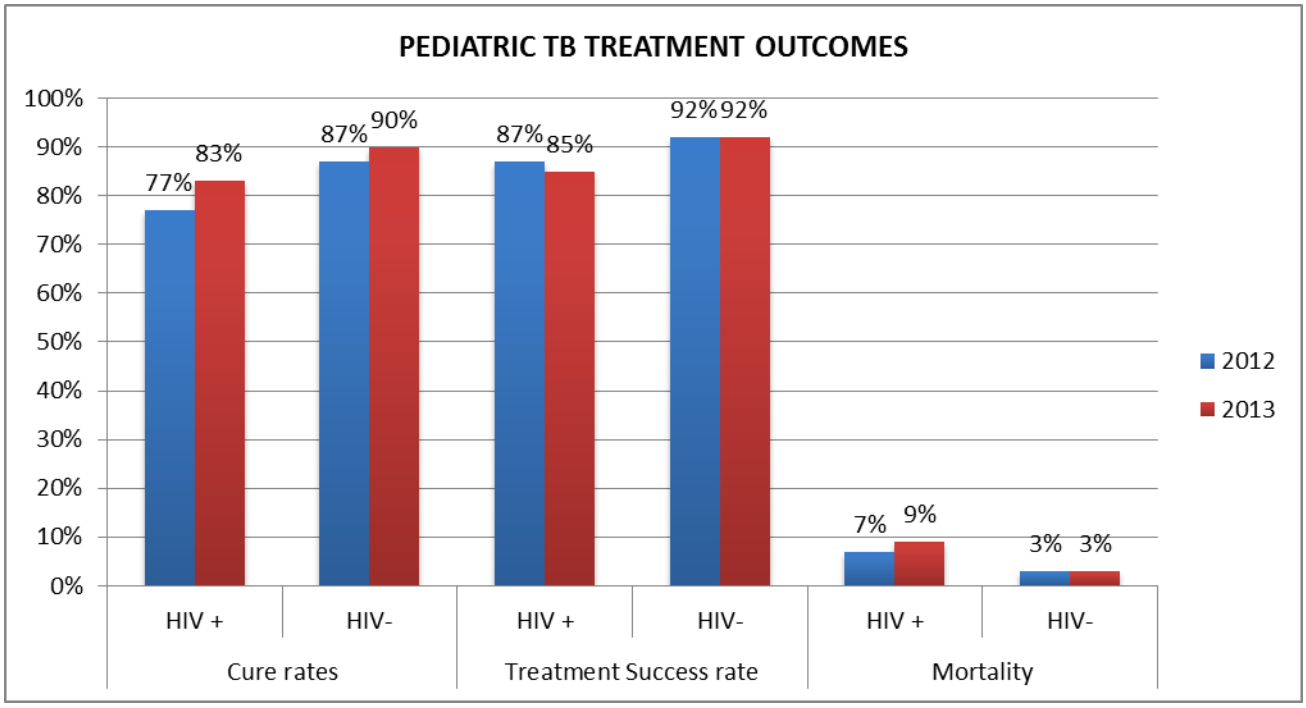
The proportion of paediatric TB case finding has dropped from 11% in 2008 and 13% in 2009 to 9.5% in 2014.

Figure 3.3.5 Age-sex distribution of pediatric TB cases 2012-2014



Majority of the children affected by TB were of 10-14 years. There has been a decrease in notified cases from 2012 to 2014.

Figure 3.3.6 Pediatric TB treatment outcomes 2012 & 2013



Among children living with HIV, the cure rates improved from 77% to 83 % in those enrolled on treatment in 2012 and 2013, and from 87% to 90% in HIV negative children in the same period.

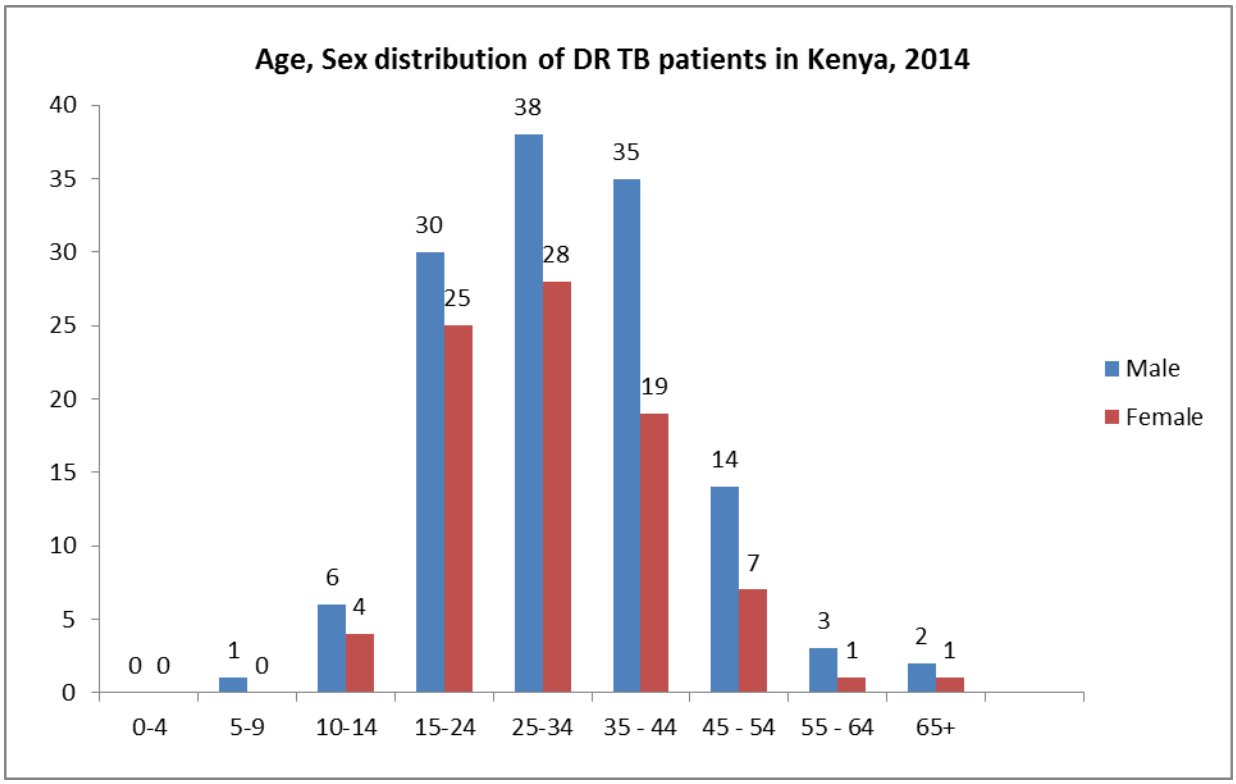
Deaths among TB HIV co-infected children increased from 7% among those enrolled on treatment in 2012 to 9% in 2013, which is three times higher than in HIV negative children.

The program has adapted several strategic approaches to increase paediatric case finding, improve paediatric TB management, prevention and advocacy. These include establishing county level centres of excellence for management of childhood TB, building capacity of healthcare workers in management of childhood TB, integrating childhood TB with other specialties, community engagement, enhancing capacity for rapid detection of TB and DR TB in children, systemizing TB/HIV collaborative activities for children, scaling up nutrition interventions for malnourished children with TB, child contact tracing among TB patients, integration of child TB screening into maternal and child health departments, scaling up INH prophylaxis for eligible children and enhancing quality of care for chronic lung disease in children, like asthma as well as operational research.

C. Drug Resistant TB

Kenya has seen a gradual increase in Drug Resistant TB case notification over the years due to sustained efforts to increase case detection through surveillance. The notified drug resistant TB cases increased from 112 cases in 2010 to 288 cases in 2014 with paediatric cases accounting for 5.1% of the cases. Males were more affected than females with a mean age of 33 years.

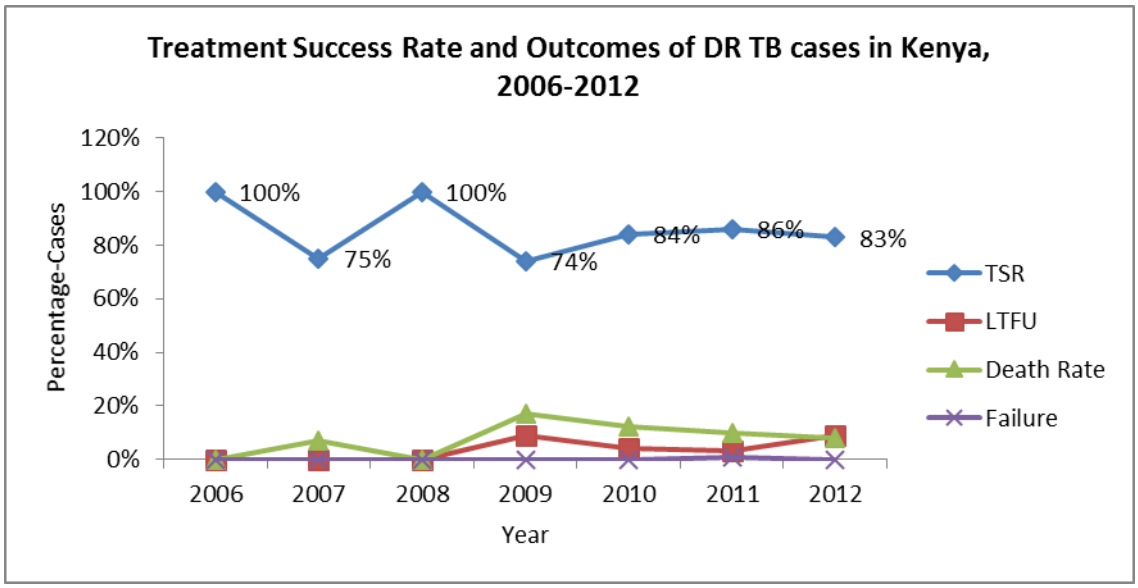
Figure 3.3.7 Age-sex distribution of DR TB patients in 2014



MDR TB accounted for 213 cases, a drop from 247 in 2013; Nairobi and Garissa Counties accounted for the majority of cases.

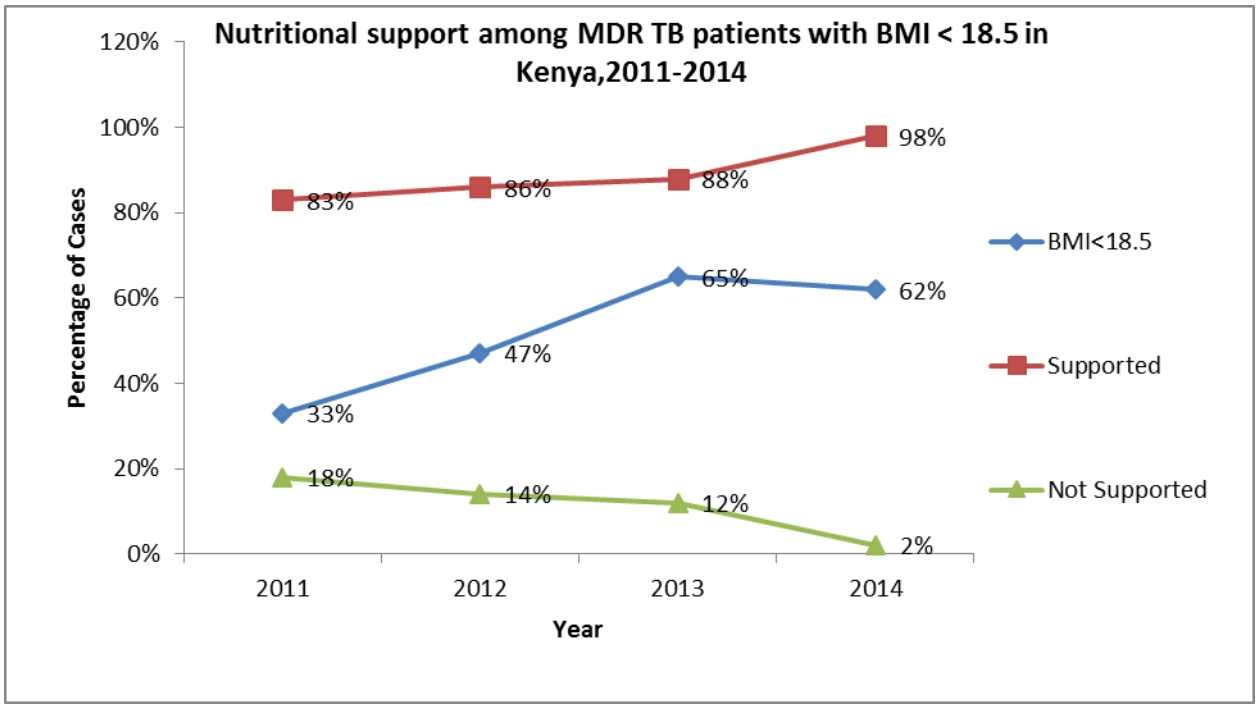
Of all notified MDR-TB patients, 99% were tested for HIV, with a 32% co-infection rate and a 98% ART initiation rate.

Figure 3.3.8 TSR and other treatment outcomes for DR TB patients, 2006-2012



The overall treatment success rate was 83% for DR TB cases enrolled on treatment in 2012, 9% were lost to follow up and 8% died.

Figure 3.3.9 Nutritional support among MDR TB patients with BMI<18.5, 2011-2014



D. TB Infection Prevention and Control (IPC)

a) Program Manuals & Guidelines - Revision of the TB IPC Curriculum for HCW
TB IPC curriculum developed in 2012 and piloted in 2013 was revised to incorporate the current advances in science and the new devolved system of governance.
Key areas addressed included the environmental/engineering module details of this module, which were complex.

b) IPC guidelines: The IPC guidelines for TB infection and prevention in Kenya were successfully revised and printed. Key areas updated included the WHO definitions, presentation slides, and use of simplified language, changed cover layout and size of booklet.

c) Distribution of N95: The total number of 974 N95 respirators was distributed in 2014.

d) **Capacity building:** A total of 130 HCWs from 65 health facilities were trained on principles, approaches, conducting TB risk assessment, and developing TB IPC plans for their facilities.
Rwanda hosted a Trainer of trainers training at the Centre of Excellence in Kigali where two (2) HCWs from Kenya were trained.

Practical Approach to Lung Health

In Kenya, respiratory disease conditions account for 25% of outpatient morbidity. Pneumonia accounts for 9% of hospital admissions while tuberculosis contributes 2%. (quote source). The summary data collection sheets in the public health facilities categorizes respiratory tract conditions into three: pneumonia and tuberculosis and t other conditions. Among the causes of mortality in the Kenya population, pneumonia contributes to 12% and tuberculosis 5.5%.

There are no population-based studies that have examined the prevalence of asthma (all age groups) and COPD. These would be important to provide a baseline to measure the effects of implementing PAL. Kenya has participated in International Study of Asthma and Allergic Disease in Childhood (ISAAC) phase 1 and 3 studies at two sites, Nairobi and Eldoret. The prevalence of wheeze in the past 12 months among 13-14 year old children in the ISAAC phase 1 study carried out in 1995 was 17.1% and 10.4 % in Nairobi and Eldoret respectively (ref). In the ISAAC phase 3 study of 2000, this prevalence had increased to 18% and 13.8 % in Nairobi and Eldoret respectively (ref). Based on the results of the ISAAC studies it is estimated that about 10% of the Kenyan population, or nearly 4 million people, have asthma.

To improve the case management of TB, the NTLD Program and partners have adapted the PAL strategy with the aim of early TB case detection, reduce the morbidity of lung disease and improve the quality of life for lung disease patients. The PAL strategy emphasizes on TB, pneumonia and chronic respiratory diseases (CRD), namely asthma and COPD.

The NTLD Program has initiated several activities including: development of various tools including the PAL guidelines, the training manuals, asthma registers, IEC materials (posters and brochure's on asthma and COPD) and patient management cards. Essential equipment to support the diagnosis of the PAL conditions which include spirometers, peak flow meters, and nebulizers have been purchased and health care workers from various hospitals have been trained on PAL. Initial training was for TB managers in counties and sub

Achievements:

1. **Equipping Hospitals:** 33 hospitals across the country equipped with spiro meters, peak flow meters and nebulizers

2. **Printing of guidelines and IEC materials**

    - 6,000 copies of PAL guidelines printed and distributed
    - 100,000 copies of Asthma posters printed and distributed
    - 50,000 copies of Asthma leaflets printed and distributed
    - 50,000 copies of COPD brochures printed and distributed

Challenges:

- Inadequate funds for the implementation of PAL activities including finalization of the M&E plan for PAL strategy, printing and dissemination of most of the tools developed
- There has been no evaluation of PAL implementation
- Inadequate supply of essential equipment and commodities to support diagnosis and treatment at the health facilities
- Inhibitive cost of drugs (inhalers) to a majority of the population.

Most of the processes that have been initiated need to be sustained and improved to enhance detection and efficient management of the chronic lung illnesses in all health facilities.

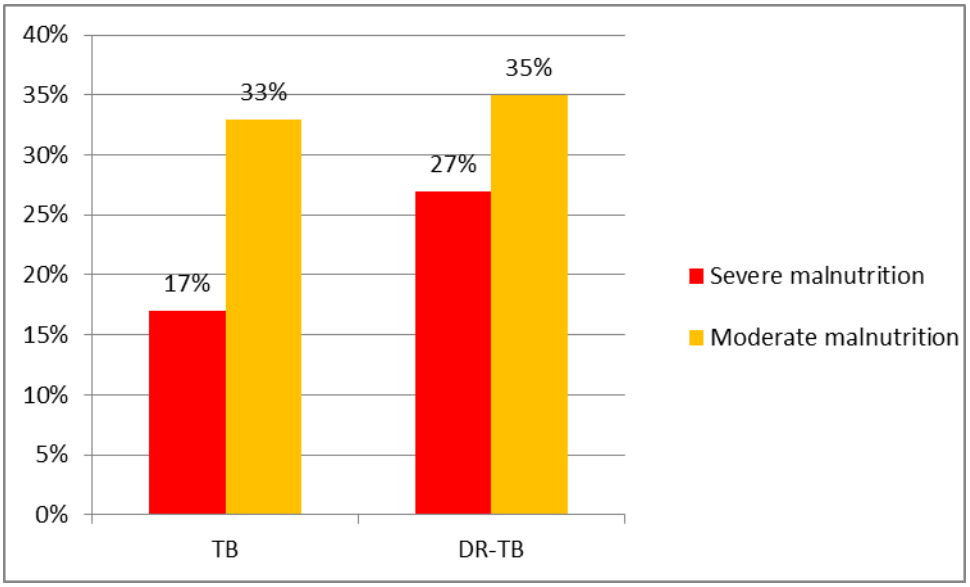
Opportunities for Improvement/Scale- Up:

- Prioritization of Comprehensive Lung Health approach by GoK
- Resource allocation for implementation of PAL
- Mapping of partnerships/Resources
- Dissemination of Policy, Guidelines
- Strengthen the coordination/management of PAL program
- Revamp technical working group for lung health and devolve the same to counties

E. Nutrition

Under nutrition increases the risk of tuberculosis (TB) and in turn TB can lead to malnutrition. Under nutrition is therefore highly prevalent among people with TB. It has been demonstrated that under nutrition is a risk factor for progression from TB infection to active TB disease and that under nutrition at the time of diagnosis of active TB is a predictor of increased risk of death and TB relapse (WHO, 2013) TB control in Kenya is not only overlapped, but also complicated by high rates of malnutrition. In 2014, 17% (15,124) and 33% (23,268) of all notified TB patients had severe and moderate malnutrition respectively. Among the severely malnourished patients, 61.4% received nutrition therapeutic support.

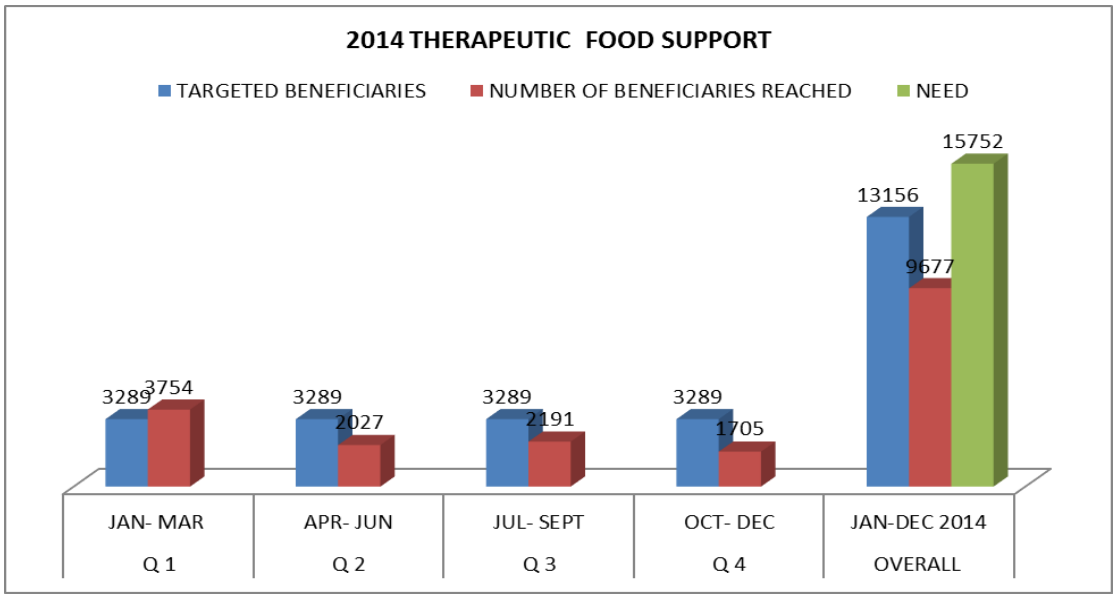
Graph 3.3.10: Nutrition status of Susceptible TB and DR-TB patients



Achievements in 2014

1. Distribution of nutrition commodities: Food support was dispensed to 61.4% of the severely under-nourished TB patients.

Figure 3.3.11 Summary of 2014 Therapeutic Food Support



2. Capacity building: 470 health care workers were trained on nutrition in TB across the country in 2014.

3. Nutrition in TB, Leprosy and Lung disease guideline and training curriculum reviewed and aligned to the Integrated Management of Acute Malnutrition (IMAM guidelines) and the 2013 WHO Nutritional care and support for patients with tuberculosis.

Challenges:

- Unavailability of commodities for treating moderate malnutrition in order to prevent severe forms of under nutrition
- Difficulties in collecting nutrition data for children
- The financial resources committed to nutrition remain limited
- Advocacy and communication strategies on nutrition are relatively weak
- Major knowledge gap on nutrition among other health workers
- The food distribution team is faced by insecurity in the hard to reach counties
- 49% of the TB facilities do not have anthropometric equipment.

Anthropometric equipment was supplied to the following counties:	
Bomet	22
Bungoma	46
Busia	40
Embu	9
Isiolo TB Manyatta	9
Kajiado	8
Kakamega	80
Kericho	4
Kitui	22
Laikipia	5
Machakos	26
Makueni	20
Marsabit	36
Meru	17
Nakuru	30
Narok	4
Samburu	15
Siaya	20
Tharaka Nithi	14
Total	**427**

f. Leprosy Control

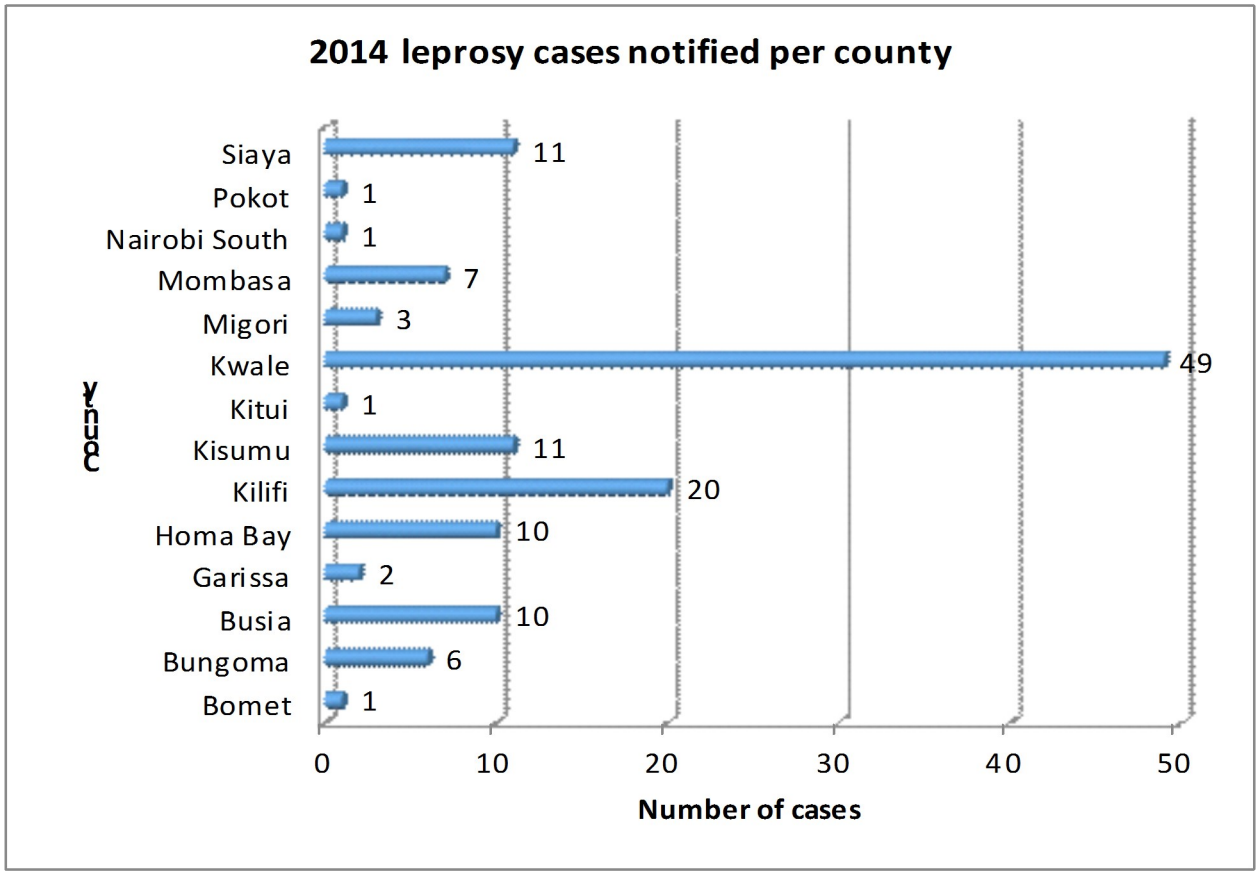
In 2014, 133 Leprosy cases were notified (Table 1), majority (90%) of those notified were multi-bacillary. The strategies to address control were aimed at: early case detection, improved recording, reporting, treatment completion of all diagnosed leprosy cases and strengthening disability prevention initiatives and promote care services including rehabilitation. Active leprosy case-finding exercises which were conducted in Kwale, Pokot and Kisumu counties yielded remarkable numbers of new cases, most being the infectious Multi-Bacillary form. Childhood cases (the marker of active transmission) accounted for 11% of the cases diagnosed in the year 2014 indicating ongoing active transmission in both endemic and non-endemic areas.

Case Finding

Table 3.3.12.All cases registered in 2014

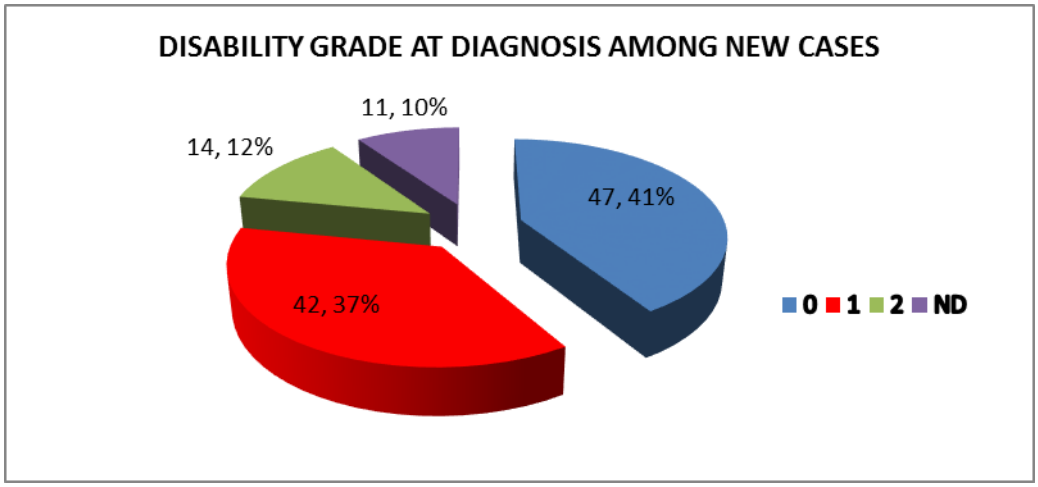
Period	Pauci Bacillary (PB)	Multi Bacillary (MB)	Total
New	13	101	114
Relapse	0	12	12
Transfer in	0	2	2
Treatment Resumed	0	5	5
Total	13	120	133

Figure 3.3.13 Leprosy case finding per County, 2014



Disability Grading

Figure 3.3.14 Distribution of new cases with disability grading at diagnosis, 2014



Key Activity in 2014

1. **World Leprosy Day (WLD):** is commemorated annually on the last Sunday of January. Despite an increase in new Leprosy cases reported to the National program, limited activities were carried out during the WLD largely due to lack of funds. Various activities to create awareness to the general population were however conducted at various levels across the country. At the national Level, the Kenya Broadcasting Corporation provided free Radio and TV talk shows. Through the funding of the county government, Kwale County and AIFO conducted active case search, radio talk shows and sensitization of community health extension workers to commemorate the event.

2. Capacity building: In 2014, Kwale County supported the training 25 health workers on leprosy case management. AIFO supported sensitization of 30 CHEWS (Community Health Extension Workers) on leprosy case finding.

3. Leprosy microscopy: Out of the 133 cases diagnosed in 2014, 27 leprosy cases were done by slit skin smear, 23 cases were negative whereas 4 cases tested positive for AFB – ZN staining.

4. Commodity: In 2014, WHO provided MDT (Multidrug Therapy) for both adults and children and no shortages were experienced in 2014.

Challenges and Constraints

- There has been minimal funding of leprosy control activities since its elimination in 1989.
- Low profiling of leprosy at all levels evidenced by Low prioritization in resource allocation.
- Inadequate rehabilitation of the diagnosed leprosy and former leprosy cases.
- Community ignorance about leprosy and Social stigma associated with leprosy patients
- Limited competence among many Health care workers to suspect, diagnose and effectively manage Leprosy patients

Way forward

- The program recommends on-job training of care providers during routine support supervision.
- Integration of Leprosy control activities into the existing community based TB Care activities and other TB Programs
- Resource mobilization for Leprosy control activities at the County level from County Government and partners.

G. Commodity and Logistics

The commodity and logistics section coordinates the selection, quantification, procurement, and distribution including monitoring the use of TB, Leprosy and other lung health commodities. It is also involved in pharmacovigilance.

Pharmacovigilance

In collaboration with Pharmacy and Poisons Board, the NTLD-Program carried out a sensitization exercise for health care workers on pharmacovigilance reporting in 2013. There was noted significant improvement on adverse drug reactions (ADRs) reporting in 2014 as per the analysed reports by PPB.

Figure 3.3.15 Trends over time (Trend in No. of anti-TB medicines ADRs cases reported between 2010-2014)

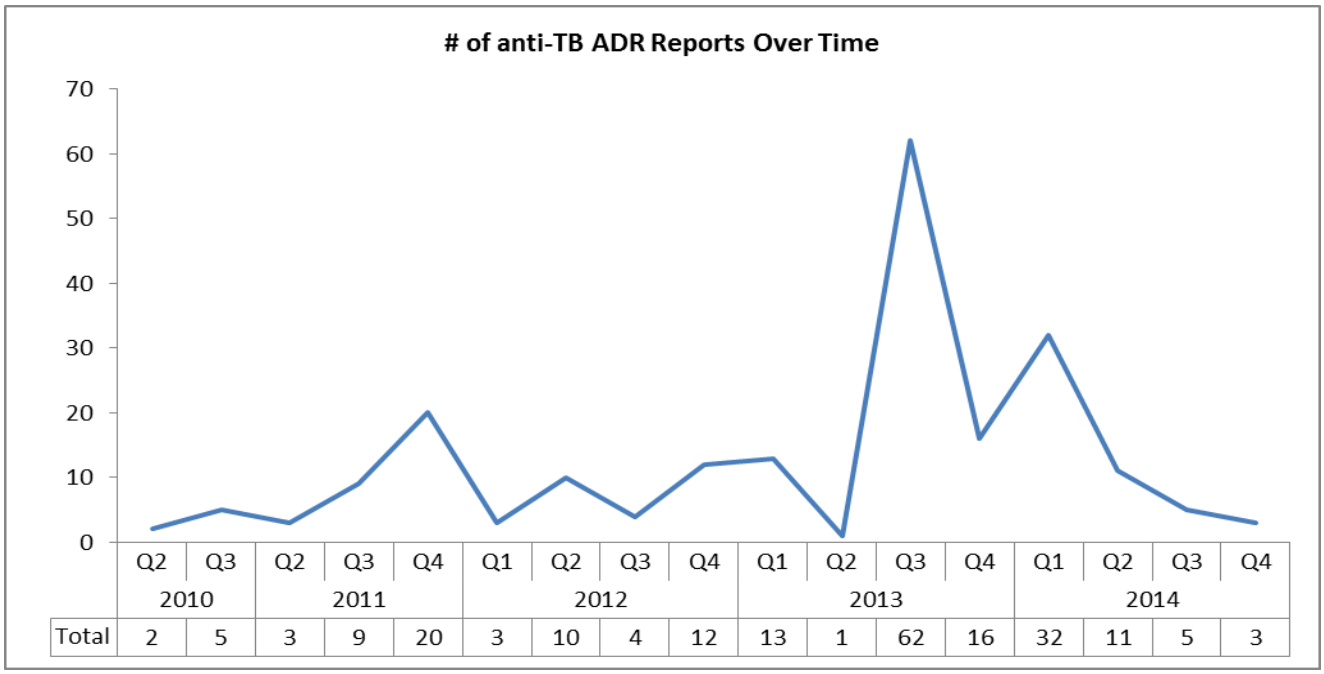
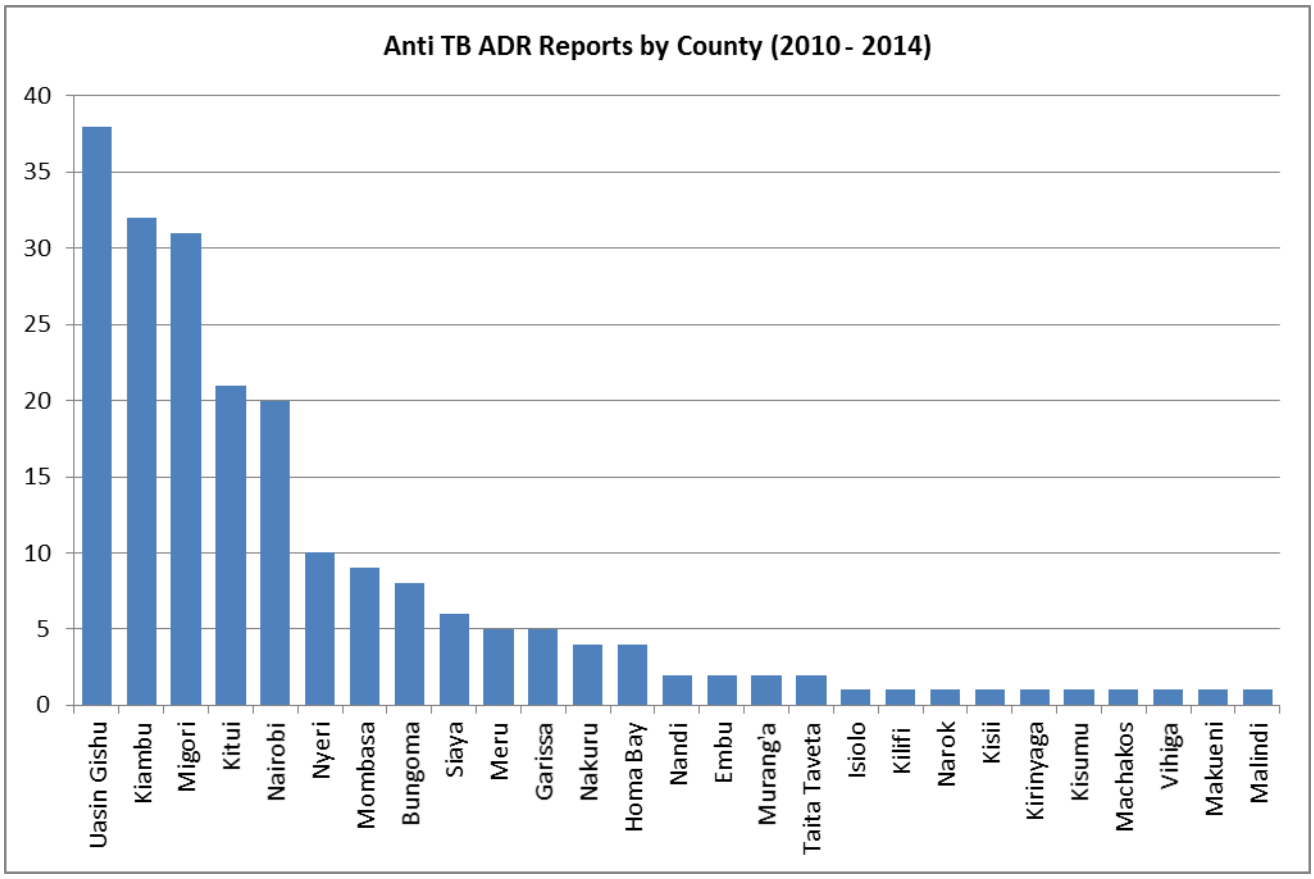


Figure 3.3.16 Number of Anti TB ADRs cases reported by county



Activities conducted

Commodity security meetings -monthly	Meetings held on a monthly basis. These meetings have served to inform the program on the commodity security status in the country and assisted in timely planning
Distribution planning-quarterly and actual distribu-tion-quarterly	The distribution of commodities has been carried out using the KEMSA and courier distribution mechanism. All TB medicines are distributed on a quarterly basis while the laboratory consumables are biannual
Forecasting and Quantifica-tion (F&Q) meeting	This exercise took place in March 2014 at Panesic Hotel in Embu. All the sections within the program were represented. The draft report that was developed was used to advice on the years' requirement and helped to identify existing financial gap. This report was also shared with the partners including USAID and WHO/Global Drug Facility (GDF) and helped in resource mobilization for supply of Isoniazid for adults and children as well as the paediatric medicines from the GDF. The NTLD also relied heavily on this report to lobby the government towards implementing a centralized procurement of TB commodities

Summary Cost of Commodity requirements for the Financial Year 2014/2015	
Category	**Cost USD)**
Pharmaceuticals	
First Line TB Medicines	4,594,888.00
MDR TB Medicines	0.00
XDR TB Medicines	0.00
Ancillary Medicines	0.00
Sub Total	**4,594,888.00**
Laboratory Commodities	
AFB Microscopy Consumables	39,571.00
AFB Microscopy Equipment	6,881,678.00
GeneXpert Machines and Consumables	3,318,356.00
NTRL	1,491,498.00
Sub Total	***11,731,103.00***
LMIS Tools and IEC Materials	
LMIS Tools	1,792,319.94
Guidelines and SOPs	366,047.33
IE Materials	1,112,054.83
World TB day Promotional Materials	294,283.04
Mass Media Costs	283,973.76
Sub Total	***3,848,678.90***
Grand Total	**20,174.669.88**

Engagement of partners i.e. WHO/GDF to ensure commodity security in the country	Upon promulgation of the new constitution, some of the key functions on health i.e. centralized procurement delayed procurement of medicines and the country therefore risked acute stock out of TB medicines. Through the efforts commodity committee, the program was able to borrow medicines supplies from Malawi through the Global Drug Facility (GDF). Tenacious efforts by the commodity security committee through the TB-ICC resulted on the country reallocating funds to procure 60% of all TB medicines required into the country for the FY 2014/15
Quarterly supervision of distribution (AUDIT)	A commodity audit was carried out based on data quality sampled from the counties. This exercise helped the program rationalize commodity supplies in the country and formed a baseline of the commodity situation in the country
Attend quarterly meetings	Section has been well represented in all the quarterly meetings. The section has always ensured timely communication by developing appropriate slides to address the commodities and logistics issues within the program
Technical assistance missions	The program hosted a GDF mission in March 2014. The mission offered technical assistance to identify commodity requirements. This formed basis for reallocation of Ksh 286 million by the Government and an additional grant from the STOP TB Partnership for both First line TB medicines and Isoniazid for use in the IPT program for 280,000 adults and 31,000 children
Resource Mobilization	The section helped in planning and executing timely resource mobilization activities in 2014/15. As a result, Kenya received support from the USAID to procure Isoniazid for 200,000 PLHIV (adults and children). Also, the GDF supported the country by providing emergency supplies for both adult as well as paediatric TB medicines to address the acute shortage which resulted from delayed centralized procurement
Annual PSK and PAK meetings	The NTLD program supported two program officers (pharmacists) to attend the PSK symposium in Mombasa and shared experiences on management of TB and use of the new TB medicines management/ quantification tools (Quan-TB) to the pharmacists

3.4 Laboratory Services

Tb laboratory services in the country are structured into three tiers: sputum smear microscopy, Xpert MTB/ RIF/molecular testing and culture/DST. The mandate and achievement of each section is described below

A. TB Sputum Smear Microscopy Services

In 2014, microscopy diagnostic services sites increased from 1,860 to 1,920, majority of these facilities are government owned public health facilities and faith based health facilities. Sputum smear microscopy remains the main lab diagnostic method for tuberculosis in the country. There are 400 Light Emitting Diode (LED) microscopes placed in high volume laboratories; this includes all Counties and busy Sub-County hospital laboratories. The microscopy diagnostic sites coverage per population stands at 1 laboratory to 24,000 compared to 100,000 as recommended by WHO. In view of this, the current strategy is to improve the quality of services in the current laboratories rather than decentralizing further.

Figure 3.4.1: Number of TB Diagnostic centres (Laboratories) 2007-2014

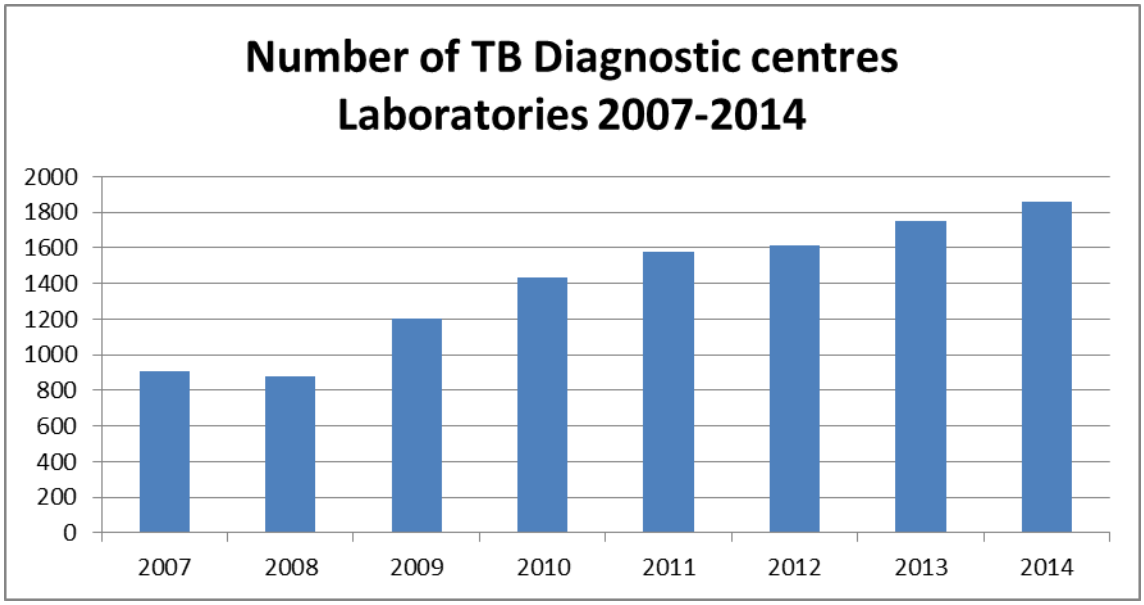


Table 3.4.2: AAFB smear microscopy workload from 2012 up to 2014

	Diagnosis			Follow up				% drop
	Pos. (1+,2+, 3+)	**Actual no.**	**Neg.**	**Pos.** (1+,2+, 3+)	**Actual no.**	**Neg.**	**Total**	
2012	80,518	7,953	673,825	8,650	3,083	10,694	880,976	
2013	65,846	5,984	556,905	6,841	2,187	79,883	717,616	18.5
2014	57,178	4,002	486,751	5,044	1,391	59,027	613,393	14.5

There has been a downward trend of the total smear microscopy workload in the Counties from 880,976 total smears done in 2012 to 717,616 (18.5% drop) and from 717,616 in 2013 to 613,393 in 2014 (14.5 % drop) as shown in Table 1.

External Quality Assurance (EQA)
In 2014, Global Fund and USAID (TB-ARC) provided support for EQA for TB microscopy services. This enabled County Medical Laboratory Coordinators (CMLTS) to provide EQA feedback and mentorship to health facilities offering TB microscopy services. By the end of 2014, 82% (n=1,574) of these facilities were covered by EQA services with an average concordance of 97%.

Figure 3.4.3: the figure shows total number of diagnostic laboratories compared with number of laboratories checked for EQA from 2010 to 2014

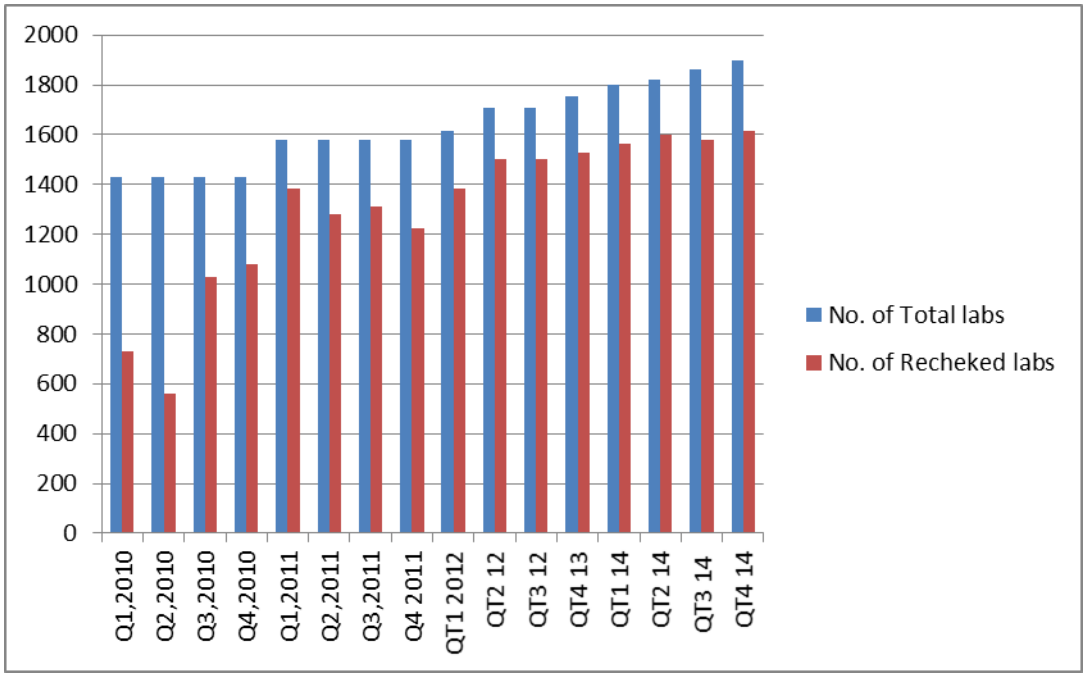
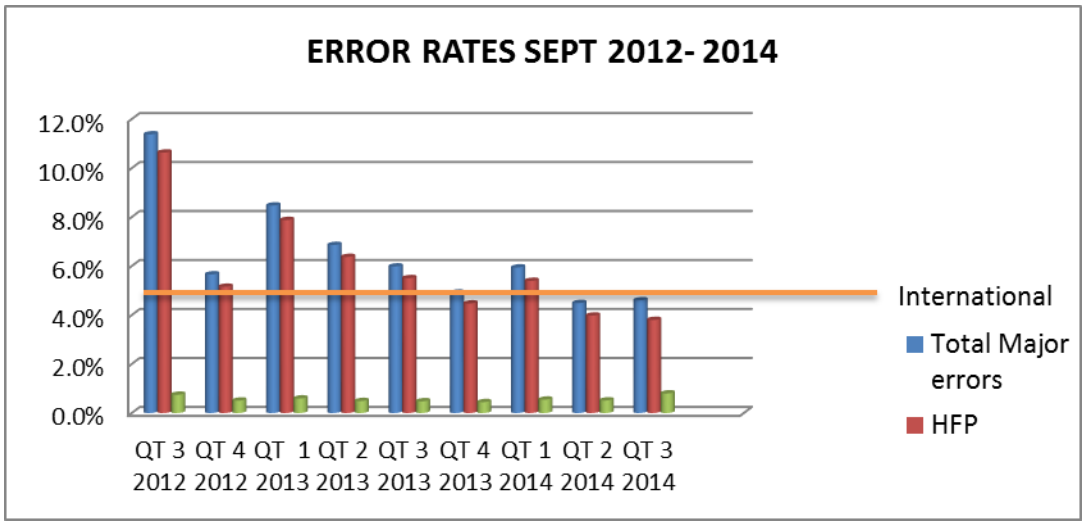


Figure 3.4.4: The figure shows total number of errors per category



Main findings
There was no significant improvement in quarterly EQA coverage, which still stands at 82 % as reported previously. All the regions had submitted their reports by the time of analysis. Although there is an increase in TB diagnostic centres, the analysis was based on facilities that had been captured in the previous quarters.

There is a consistent downward trend of all the errors with current rate of HFP at 4 % and High False Negative (HFN) at 0.5%, The false negative error rate has consistently been maintained at less than 1 %, There is a consistent drop in quantification errors (QE) for the last 4 quarters, The completeness and submission of EQA reports by SCMLTs and CMLTs is good.

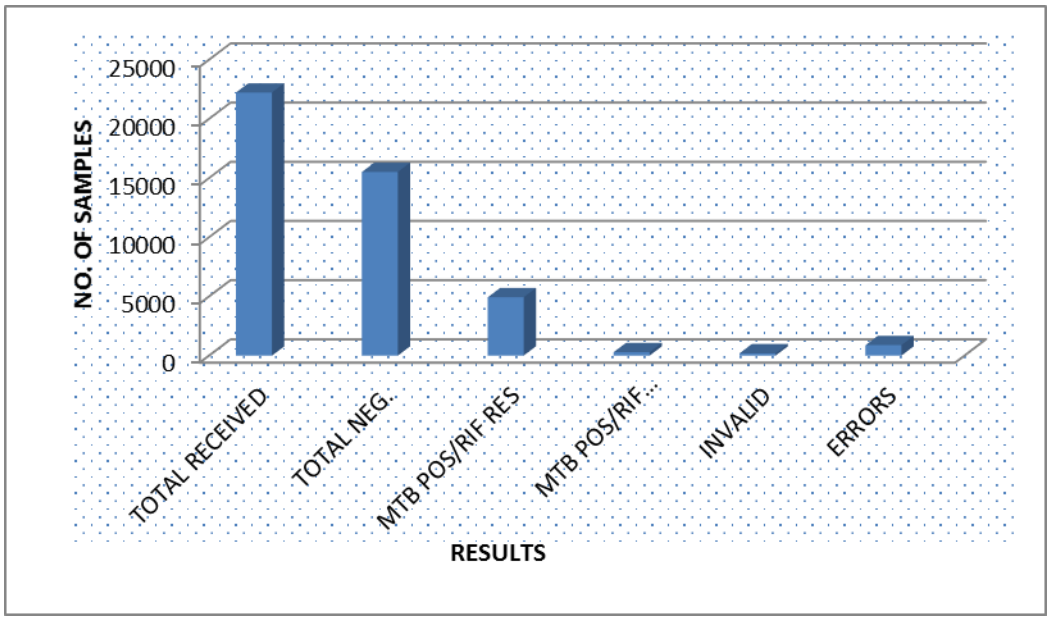
B. XPERT MTB/RIF

This is a rapid molecular diagnostic test that simultaneously detects *Mycobacterium tuberculosis* and resistance to rifampicin (RIF) in less than 2 hours. In 2014, a total of 70 XpertMTB/RIF machines had been placed in all county referral hospitals, high volume Sub-County hospitals and Faith based hospitals across the country.
To ensure smooth scale -up of Xpert MTB/RIF services in the country, the program introduced XpertMTB/RIF task forces at national and county levels. At the national level, the task force is comprised of representatives from the NTLD program, National Tuberculosis Reference Laboratory (NTRL), National AIDS Control Program (NASCOP) and partners. The terms of reference for this task force is resource mobilization and policy formulation at the county level, the task force membership includes County AIDS Coordinator (CASCO), County TB and Leprosy Coordinator (CTLC), Sub-County TB and Leprosy Coordinator SCTLC), County Medical Laboratory Technologist (CMLT), Sub-County Medical laboratory technologist (SCMLT) and partners. The terms of reference for this task force are to ensure XpertMTB/RIF scale-up, improve XpertMTB/RIF test utilization, strengthen networking and ensure proper management of commodity.
In 2014, there were a total of 22,023 sputum samples tested for *Mycobacterium tuberculosis* using Xpert MTB/ RIF technology in the country as tabulated in table 2 below.

Table 3.4.5: Number of samples tested using Xpert MTB/RIF technology in the country for 2014

Total samples received	GeneXpert negative (No MTB)	MTB positive Rif. Negative	MTB positive Rif. resistant	MTB positive Rif. Indeterminate	Invalid	Errors
22,023	**15,512**	**4,934**	**290**	**209**	**193**	**885**

Figure 3.4.6: Graphical presentation of total samples received for Xpert MTB/RIF system diagnosis in the Country



Health care worker capacity building

Through Global Fund support a total of 250 laboratory staff under went through AFB refresher training. All 47 county laboratory coordinators were trained on EQA for sputum smear microscopy and EQA e-reporting. Laboratory staff from all 70 XpertMTB/RIF sites were trained on the Xpert Alert system that is able to send real time results to clinicians in.

Supplies

In 2014, no service delivery point reported stock-out of laboratory commodities, except for XpertMTB/RIF cartridges and falcon tubes due to delay in delivering the same by KEMSA. Through JICA, the NTLD-Program procured 47 laptops for CMLTs to be used in EQA e-reporting, 1,000 slide holding boxes was also procured through the same JICA support.

Constraint

Majority of the CMLTs require capacity building on various TB laboratory aspects of TB. Human resource remains a big challenge as one laboratory staff mans majority of the diagnostic centres at the peripheral level. Infrastructure constraints (space and ventilation) pose a major concern with regards to TB infection control.

Technical assistance

JICA seconded a TB laboratory specialist to provide technical support for TB laboratory services.

C. TB REFERENCE LABORATORIES

The National TB Reference Laboratory (NTRL) is located in Nairobi and is a state owned facility performing culture and drug sensitivity. The NTRL conducts AFB smear microscopy, TB culture, Line probe assays (LPA Hain) and Xpert MTB tests. The KEMRI-CDC culture laboratory is located in Kisumu. The patients eligible for culture include health care workers, prisoners, MDR TB contacts, and all presumptive Re-treatment cases with MTB on Xpert MTB/RIF, all MDR TB patients on treatment and all other categories with Rifampicin resistance by Xpert MTB/RIF. The number of previously treated cases in the country in 2014 was approximately 8,785. 9,715 samples were received for culture, which was 81% coverage of the expected 12,000 samples as shown on the tables and figures below.

Table 3.4.7 Number of Culture and DST done in both NTRL and KEMRI CDC

	NTRL	KEMRI CDC	TOTAL
Total sputum samples received	7,436	2,281	9,717
Total sputum samples cultured	6,819	2,281	9,100
DSTs Done	3,569	665	4,234
MDRs Diagnosed	62	11	73
Resistance H	167	20	187
Resistance R	43	17	60
LPA Done	2,074	0	2,074
MTB Detected	1,654	0	1,654
No MTB	336	0	336
MOTT	84	0	84

Of the 9,715 samples received, 9,100 samples were cultured with a rejection rate of 2.9%

Figure 3.4.8 Sputum samples received at the culture labs and number cultured

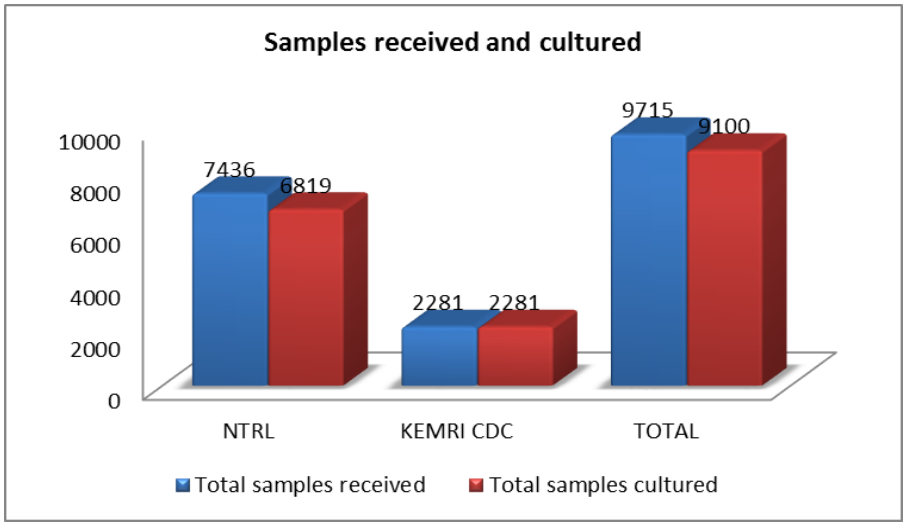
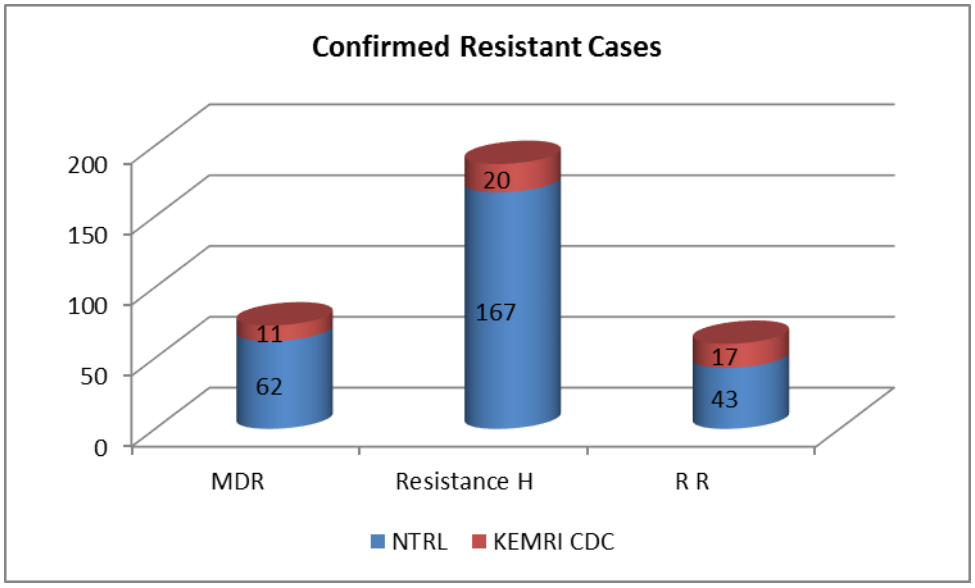


Figure 3.4.9 Number of confirmed resistant cases in 2014



A total of 4,234 samples were subjected to DST of which 1.72% (728) were MDR, 4.4% (187) were Isoniazid resistant and 1.4% (60) were Rifampicin resistant.

NTRL Staff in the lab

NTRL 2014 Achievements

- Drug resistance survey was launched and by the end of the year, 1292 samples had been received and processed
- GeneXpert utilization increased from 8 to 16 tests per day
- Major laboratory equipment were put on service contract through the support of partners
- P3 laboratory was completed through the support of CDC Kenya
- The SOPS and laboratory manuals for the anticipated TB prevalence survey were developed
- A new bio safety cabinet was acquired
- EQA coverage for high workload labs (with 20 and above sputum smears per day) increased from 8 to 13 laboratories nationwide
- Two laboratory staff were trained on 2nd line DST in Australia through the support of CDC Kenya
- Three staff were trained on QMS in Ethiopia through the support of FIND
- Two staff were trained on MDR TB in Rwanda through the support of Global Fund

3.5 Prevention, Health Promotion and Community Engagement

The Prevention and Health Promotion Section oversees advocacy, communication and social mobilization (ACSM), Community Engagement and TB Infection Prevention and Control (IPC) activities.

A. Advocacy

i. **High level resource mobilization**
The NTLD Program in conjunction with CSOs organized 3 high-level advocacy forums to seek for resource allocation for TB program, central unit from the Government, which had earlier been devolved to the counties. Through these efforts the national government allocated Kshs 286 million for procurement of first line TB medicines and laboratory consumables.

ii. Barcelona Lung Conference
The Government sponsored three Members of Parliament to the World Lung Health conference held in Barcelona, Spain in November 2014. At the conference, Members of Parliament from Kenya and five other countries, led by Nick Herbert from the UK Parliament, launched the Barcelona Declaration. It calls for coordinated global action to drive down rates of TB across the world and to accelerate progress towards ending Tuberculosis as a threat to global public health through scaling up existing interventions, improved pace in the development of new drugs, diagnostics and vaccines, and investing in innovative program to diagnose and treat everyone.

iii. **STOP TB partnership Kenya**
STOP TB Partnership - Kenya developed the first strategic plan 2014 - 2018. The plan addresses social determinants of health, which go beyond health sector, and taps into the comparative advantage of the business and corporate world; builds on the aspirations, commitments and determination of the Government and the people of Kenya; and weaves these with the aspirations of patients and their families who are the core the Partnership. The STOP TB Partnership, Kenya spearheads a year-round doorstep-reaching platform for a healthy and prosperous Kenya free from TB and other poverty-related diseases. It recognizes the main root causes of diseases as poverty and ignorance.

B. Communication

i. World TB Day 2014
World Tuberculosis Day is a global event observed on the 24th of March every year. The global theme for the 2014 event was "Reach the three million: Find, Treat and Cure Tuberculosis". Although the disease is curable, efforts to find, treat and cure everyone who contracts TB are not sufficient. Kenya adopted the theme "Reaching our Unreached: Find, Treat and Cure all TB" with the aim of reaching the most vulnerable groups in TB hotspots areas, while investing in research and development for the new tools. Activities held in the build up to World TB Day included social mobilization through road shows, school health talks, active case finding, TB screening and referrals to health facilities. The national event was held on March 24th 2014 at Port Reitz Hospital and was presided over by the Cabinet Secretary in the Ministry of Health, Mr. James Macharia. TB ARC, a USAID funded activity was launched by the Cabinet Secretary and the US Ambassador to Kenya Mr. Robert F. Godec. Approximately 600 community members, partners and CSOs representatives attended the event. IEC materials distributed included 500 Pilot shirts, 300 polo and round neck shirts, reflector jackets, posters, and road banners. The national commemoration was supported by the Government of Kenya, USAID through the Tuberculosis Accelerated Response and Care activity (TB ARC), CDC, Global Fund through AMREF, Mombasa County Government, IOM, KANCO and APHIA Plus Coast. The respective county governments and other partners supported the county commemorations. CDC supported 21 counties to cover costs related to planning meetings and actual commemoration event.

ii Mass Media Activities

In the year 2014, the TB program received good media coverage on radio, TV and print including newspaper supplements in local dailies. Interactive radio talks were held on various stations across the country as well as interactive TV shows. The program received seven (7) unpaid for airtime on radio for talk shows and three (3) on TV through the support of Royal Media services, Kenya Television Network, Nation TV and Mediamax Group. These sensitized the public on TB prevention, diagnosis and treatment information.

iii Review of IEC and Promotional Materials

A workshop was held in February 2014 to review the TB IEC materials. The materials reviewed included the frequently asked questions, the stickers and posters, design of the World TB Day promotional materials i.e. t-shirts, Caps, road banners among others. The team harmonized on branding for the various items.

Radio/TV talking points were reviewed that would be used for all guest invited to give live talks to the radio and TV stations for live talks. Newspaper supplements and guest speeches were drafted in preparation for World TB Day commemoration.

Table 3.5.1 Presents a summary of the printed IEC materials

Item	Quantity	Item	Quantity
Posters TB prevention	2,326	Polo T-shirt	3,091
Reflective Jackets	1,059	Round neck T-shirts	2,051
Road Banners	15	Ordinary Caps	938
Umbrellas	1,500	Stickers	10,000
FAQs on TB (Brochures)	4,500	Bandanas	3,000
Pilot shirts	500	Calenders	600

iv Review of Communication Strategy

The National communications strategy - ***Lights of Hope*** (October 2006) was reviewed in April 2014. The document was first printed and disseminated in October 2005, reprinted in 2006, and 2010 and in 2011, with minor changes. This review lead by the NTLD-Program and USAID funded TB ARC through PATH incorporated key staff from Ministry of Health, CTLCs, patient community and advocates, CHS, AMREF, and key CSOs such as KANCO. The new draft – ***'I, the Cure for TB'*** – is aligned to the National Strategic Plan for TB, Leprosy and Lung Health and is anchored on Vision 2030, National Health Strategic Plan III (2012-2017) and the MDGs.

The strategy has adopted a more proactive approach to communication activities relating to TB control for example the devolved system of government. It seeks to raise public awareness about TB while reinforcing preventive behaviour and supporting stigma reduction and it advocates for increased resource allocation to TB control for increased access to prevention, diagnosis, care and treatment. To achieve these communication and advocacy objectives, this document provides messages for key target audiences, including national and county governments, donors, patients, the general community and health care providers, with appropriate emphasis on key populations affected by TB.

V Social Mobilization

Social mobilization activities were carried out within the districts/Counties? and Counties using Provincial Administration, religious leaders, Public health officers and CSOs. The use of vehicles mounted with public address systems and IEC/promotional materials were used to create awareness on TB and TB/HIV. Active case finding was carried out in various health facilities in the Counties.

C. Community Engagement TB Care and Support

Community and patient engagement in TB Control is the 5th element of the Stop TB strategy for effective TB contr**ol.** Despite the good performance of the national TB program, a significant (21%) proportion of people living with TB remain undetected. Innovative programmes are therefore needed to reach all individuals suffering from TB, including men, women and children. NGOs and CSOs have the capacity and know-how to reach communities in need but few implement TB activities. One approach to fill this gap is to engage NGO/ CSOs that are currently unengaged in TB and encourage them to integrate community-based TB services into their existing activities. In Kenya, engaging Communities and CSOs has remained a key area of focus in Community TB Care Strategy and has been well received by the government and various stakeholders. During the period under review, the following Community and CSOs activities were carried out:

ENGAGE TB Initiative

1. **Review training manuals:** Review of CHWs training materials was done in April with support from PATH
2. **Review of guidelines** – ENGAGE TB guidelines was reviewed in March 2014. The revision was mainly to address the existing gaps especially the Community IPC session. Drug resistant TB and social determinants of TB were also included in the curriculum. Technical terms were also simplified for better understanding and consumption at the community level. Basic information on Leprosy was incorporated into the guidelines and potential role for CSOs to engage in leprosy activities was spelt out.
3. **Review meeting**: A stakeholders' review meeting took place in March 2014: The National Program with technical and financial support fro**m** WHO convened a one-day review. A total of 30 CSOs participated in the meeting. Need to bring on board CSOs implementing HIV activities was emphasized.
4. **Technical assistances to CSOs:** The National team in collaboration with National coordinating body (NCB) and WHO visited CSOs to provide technical support. Talaku, GAPP and CHAP were visited between May and June 2014.
5. **ENGAGETB Review mission**: In September 2014, WHO GTB conducted a one-week review of the ENGAGE-TB approach in Kenya after 3 years of pilot implementation at the national level and with three NGOs[1]. The overarching purpose of the review was to draw lessons learned from the implementation of the ENGAGE-TB approach through partnerships between the NTLD-Program and implementing NGOs in Kenya[2].

[1] *The three NGOs implementing ENGAGE-TB are Grassroots Poverty Alleviation Program (GAPP), Community Health Access Program (CHAP) and TALAKU.*

[2] The review objectives and methodology were guided by WHO's *ENGAGE-TB Implementation manual* (2013) and *Framework for conducting reviews of tuberculosis programmes* (2014).

Some key lessons learnt from the review mission include:

a) NGOs are contributing to national TB efforts by reaching the unreached and enabling increased case finding and notification
b) NGOs are providing much needed care and support that would not otherwise be available through NTP clinical facilities
c) TB integration has also led to a reduction in stigma and contributed to demystifying TB care
d) Community engagement in TB is primarily via NGOs and trained community health volunteers who integrate TB services into their work on primary health care, maternal and child health and malaria.
e) NGO engagement in TB services has reduced defaulters. The Isiolo CTLC reported that default rates in Isiolo dropped from 7% to 3% after CHVs started integrating TB services into their work.
f) There is good awareness and appreciation of the ENGAGE-TB approach within government at national and county level in Busia and Isiolo as well as support for its principles and methodology. There is a genuine desire to expand NGO engagement to other counties and to more NGOs within the two counties.
g) The implementing NGOs and local government health staff, particularly the county TB coordinators and associated TB staff, worked harmoniously together in both Isiolo and Busia counties. Cooperation, collaboration and constant engagement and communication were evident in their relationship as was mutual appreciation and respect. Meetings tend to be adhoc rather than formally scheduled but seem to be frequent – sometimes weekly or at least twice every month. Issues are raised and addressed in those meetings

Trainings and Meetings

During the year under review, several trainings at community level were conducted under Global Fund. A total of 3,679 Community Health Volunteers (CHV) were trained on community based TB care in 184 TB control zones. Under ENGAGE TB, 2 CHVs trainings were done in Busia and Kajiado Counties. With support from Global Fund, a total of 878 meetings were held in all the TB control zones (158 stakeholder meetings; 717 biannual meetings; 8 meetings in informal settlements). Under ENGAGE TB, 1 sensitization meeting of Isiolo County Health team was done.

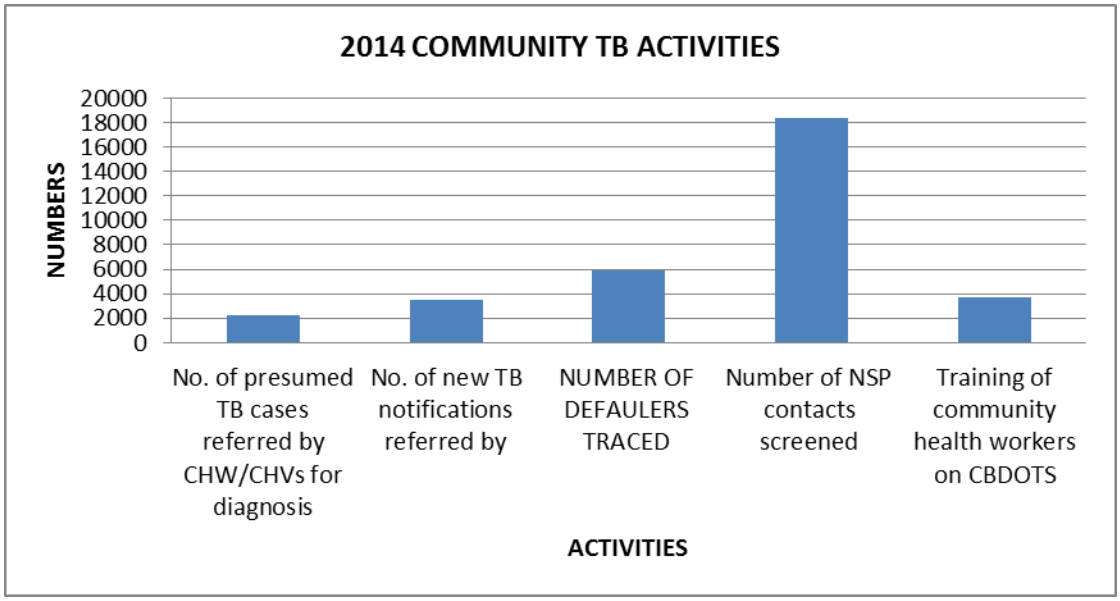
New Partnerships

In 2014, PS Kenya joined the ENGAGE TB initiative, with funding from TB reach. PS Kenya in collaboration with KMET is implementing a pilot TB program in Nyanza through TUNZA "HudumaPoa" franchise. Main activities entail demand creation and screening at the community level complemented by strengthening the facilities to be able to offer the requisite clinical component in line with the national TB program guidelines on TB care.

D. ROUTINE COMMUNITY BASED TB CARE ACTIVITIES

Global Fund supports two major community based activities, through the 41 CSOs AMREF facilitated the tracking of 18,321 new smear positive TB patients. During the tracing process at home health education about TB infection prevention and control messages were delivered. All the clients who were found to have TB symptoms were refereed for further investigation and later those found to have TB were enrolled into care. Tracing of Treatment interrupters was done for a total of 5,852 TB patients who were traced and those found were returned to treatment. For those that were not found, a report was forwarded to the TB clinic in-charges for records update.

Figure 3.5.2. Shows activities carried at the community level in 2014



Monitoring tools: Community materials procured and distributed in 2014:
Using Global funds, various materials were procured through AMREF and distributed through Sub recipients (table 1).

Table 3.5.3: Community TB care tools printed and equipment distributed in 2014

Contact tracing booklets	Treatment inter-ruption Booklets	Referrals Booklets	TB Screen-ing tools	Monthly reporting tool	Bicycles Distributed	
					Male	Female
6,217	3,083	8,661	7,435	5,850	**275**	**102**

Technical Working Group
In the year 2014, four (4) technical working group meetings were held at PATH, NASCOP and two at KAPTLD to discuss various issues touching on prevention and health promotion. In the meetings the area of discussion included NSP development, implementation of community based TB activities, TB Infection Prevention Control and review of communication strategy and community TB manuals. The NSP was finalized and printed while the community TB manuals were finalized and awaiting printing. The last TWG discussed events to commemorate World TB Day where a plan for WTB Day was developed.

Overall Challenges in the PHP Section

In 2014, the implementation of planned activities went on smoothly, however there were some challenges faced that require to be addressed.

1. Lack of harmonisation of data from TIBU and CSOs records on Community TB contributions.
2. Inadequate staffing at PHP section
3. Inadequate TOTs to scale up implementation of IPC and limited funds to implement TB IPC work plans at the facility level
4. Inadequate funds to support mass media campaigns, printing and dissemination of materials to the counties.
5. Significant under reporting of activities taking place at the community level. This is due to both the process through which a presumed TB patient goes through to access services at a facility and inadequate attention regarding column on " source of referral" by HCW
6. Shortage of monitoring and reporting tools on community TB
7. Limited number of CSO funded and implementing community activities
8. Inadequate funding to carry out community TB care activities.

Conclusion and Way Forward

1. Actively engage CHEWs in TB control activities to ensure better implementation and Supervision and reporting of TB activities
2. Piloting of presumptive/contact tracing registers
3. Avail resources for printing of more M&E tools
4. Advocate for high quality data capturing at the facility level
5. Continued to monitor quality reporting of NGOs to ensure that the value added of NGO work can be measured
6. Engage more NGOs to support TB work at the community level.
7. Provide refreshed trainings for CHVs
8. Support regular review meetings/ forums between NGOs and Government

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ANNEXXES

- List of Contributors
- Kenya Country Profile
- 2014 Case Notification Rate (CNR) per County
- County Profiles

ANNEX 1. LIST OF CONTRIBUTORS

Aiban Rono
Alice Wairia
Dorothy Mibei
Dr. Kiogora Gatimbu
Dr. Christine Wambugu
Dr. Edward Kariithi
Dr. Kamene Kimenye
Dr. Newton Ang'wa
Dr. Richard Muthoka
Drusilla Nyaboke
Duke Mobegi
Eunice Maillu
Faith Ngari
James Sekento
Jennifer Wanjiku
Joan Waminja
John Kirui
John Nasaye
John Njenga
Joyce Kiarie
Joyce Ogeto
Juliet Mutheu-Asego
Mary Osano Richard Kiplimo
Rose Muthee
Rose Wambu
Samuel Githui
Samuel Misoi
Silas Kamuren
Susan Gacheri
Tabitha Abongo
Timothy Kandie
Wendy Nkirote
Wesley Tomno

ANNEX 2. KENYA COUNTRY PROFILE

TB case finding:

In 2014, Kenya had a total of 89, 294 cases with 9.2% being children. Among the cases, 78% were drawn from the public sector and 20.1 % from the private sector.

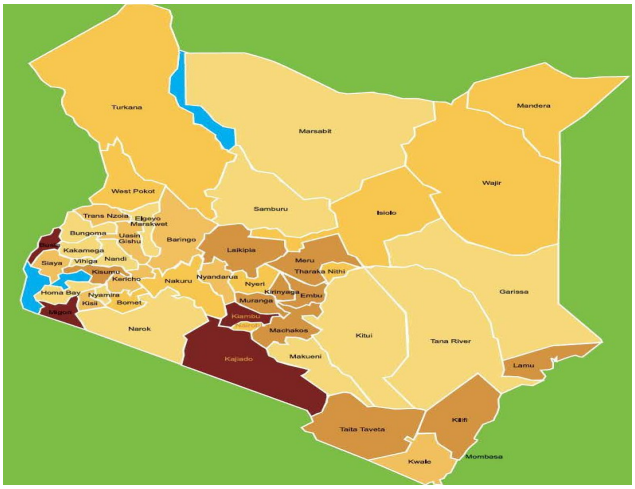


Table 2: Service delivery per county versus national

	National
TB CNR	210
TB/HIV co-infection rate	35.6%
No. Of TB Control zones	290
DX/100,000	4
Rx/100,000	7
Number of RX	3,320
Number of Dx	1,920
No of ART/CCC sites	3,000
DR TB Rx sites	212

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	36,899	34,793	34,997
R	9,726	8,501	8,785
PTB-	28,240	25,321	23,751
EPTB	15,802	14,501	14,640
SMND	7,733	6,584	7,121

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	95.5%	94%	94%
TB/HIV co-infection rate	38%	37%	35.6%
CPT Uptake	99.2%	99.2%	99.1%
ART Uptake	88.7%	86.3%	87.1%

	Kenya
Population	**43,726,652**
Urban Population	**29.9%**
Population Density	**75**
Proportion of Males	**49.7%**
HIV Prevalence	**6.04%**
Doctor to Population ratio	**1:5883**
Nurse to Population ratio	**1:3333**
HF to Population ratio	**1:4693**
HDI	**0.535**
Literacy Level	**72%**
Poverty Headcount	**46%**

Table

Type of TB	TSR (%)	Failure (%)	LTFU (%)	Death (%)	TO (%)
PTB+	**88.3**	0.5	5.3	3.4	2.5
Retreatment	**79.5**	1.2	8.2	6.8	4.3
PTB-	**85.3**	-	4.1	7.8	2.8
EPTB	**84.7**	-	4.9	7.4	3.0
SMND	**84**	-	5.4	7.2	3.4

Figure 1: Comparison of PTB+ treatment Outcomes 2012&2013

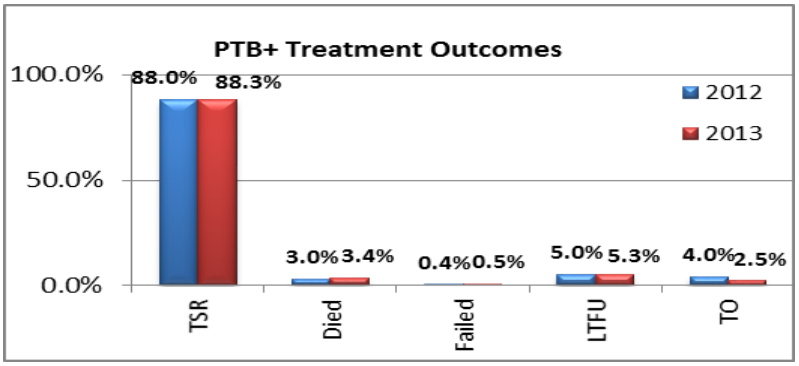
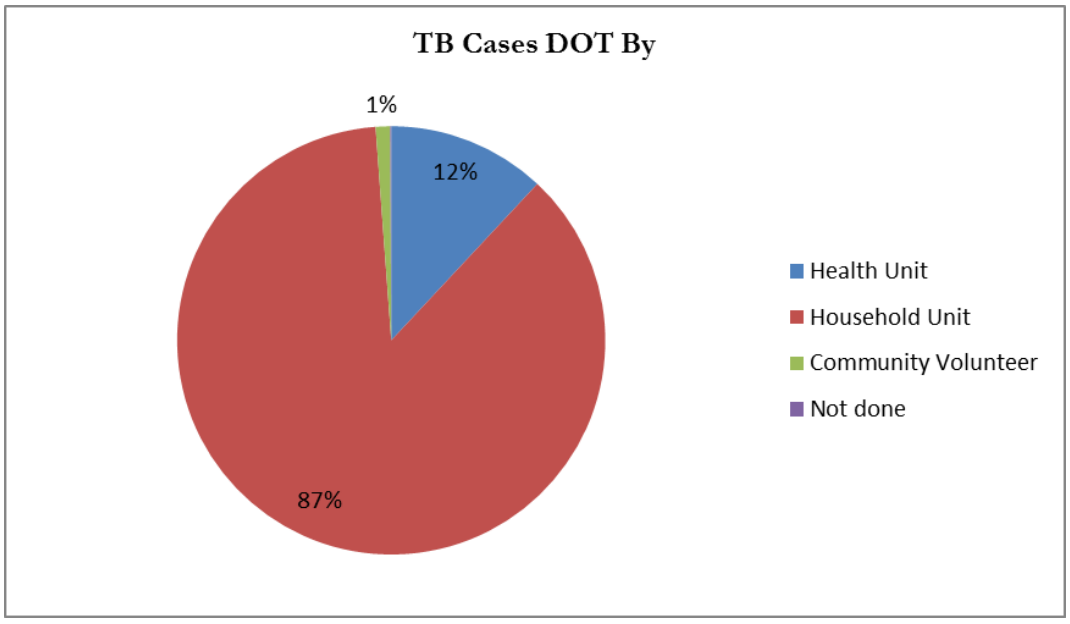


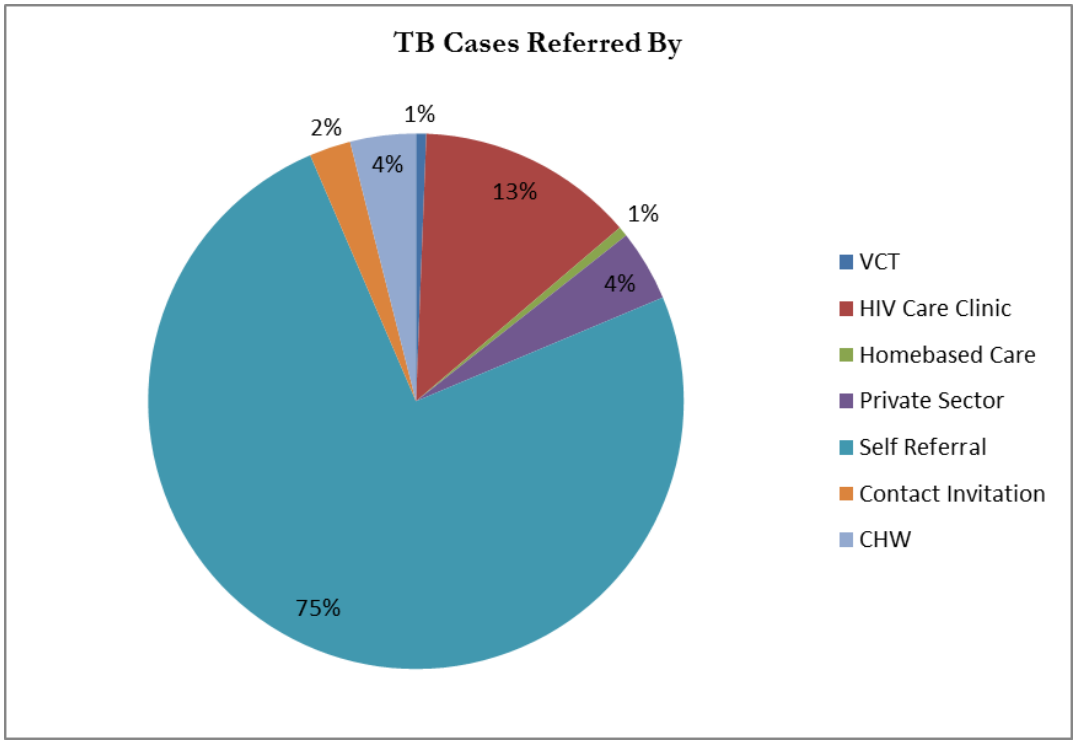
Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	14,406	24,092
Food support	8,342	9,599

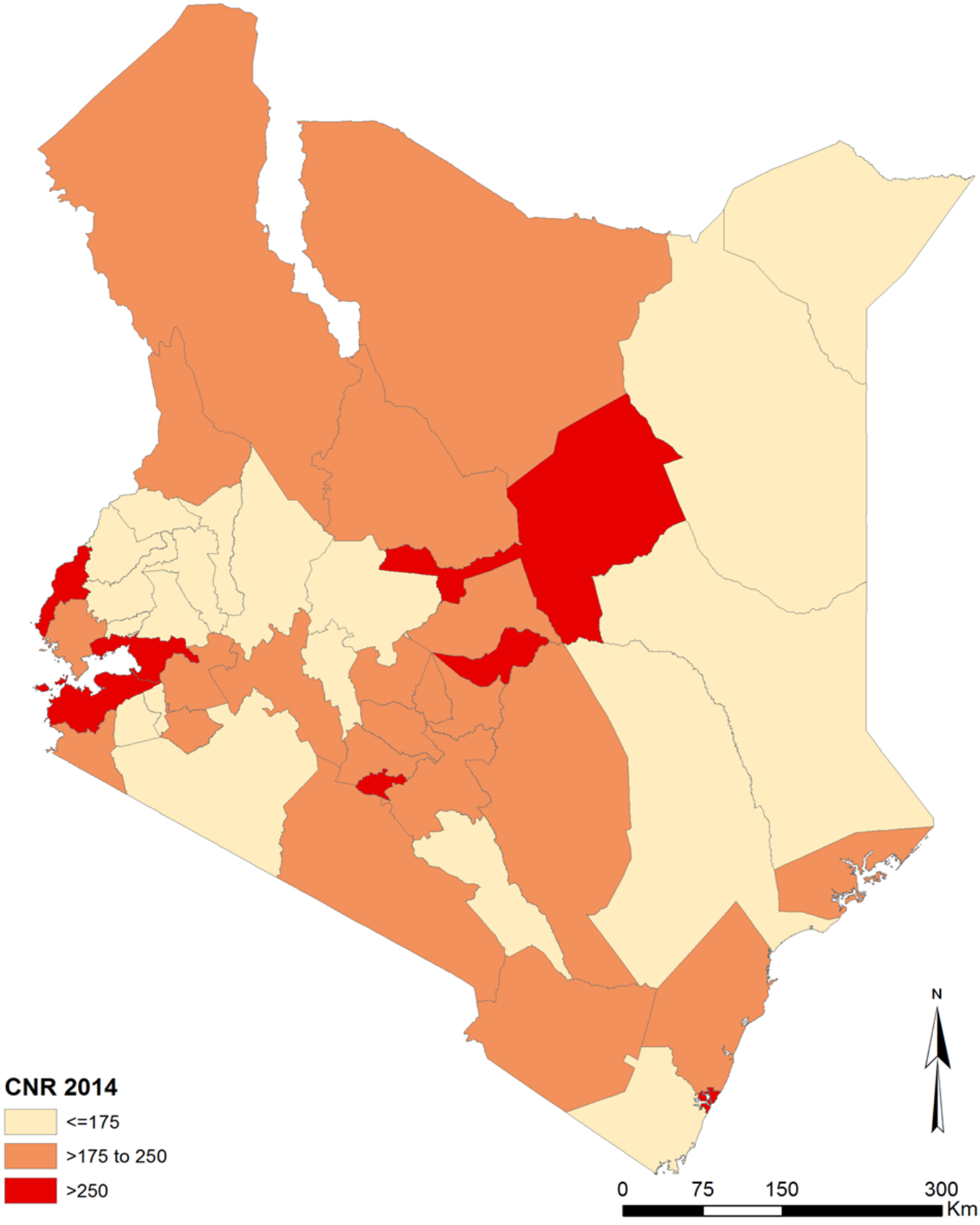
Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Ri-fampicin)	0	17	21
RR	7	18	46
PDR	17	13	13
MDR	199	290	242
Total	**223**	**338**	**322**


TB Cases DOT By
1%
12%
87%
Health Unit
Household Unit
Community Volunteer
Not done


TB Cases Referred By
2%
1%
4%
13%
1%
4%
75%
VCT
HIV Care Clinic
Homebased Care
Private Sector
Self Referral
Contact Invitation
CHW

ANNEX 3. 2014 Case Notification Rate (CNR) per County



ANNEX 4. County Profiles

TB case finding:

Baringo reported a total of 597 cases with 10.1% being children. Among the cases, 98.2% were drawn from the public sector and 1.8% from the private sector

	Baringo	Kenya
Population	629,183	43,726,652
Urban Population	11%	29.9%
Population Density	58	75
Proportion of Males	50.2%	49.7%
HIV Prevalence	3%	6.04%
Doctor to Population ratio	1:278,000	<1:10000
Nurse to Population ratio	1:4115	1:3333
HF to Population ratio	1:2956	1:4693
HDI	0.484	0.535
Literacy Level	68.1%	72%
Poverty Headcount	59	46

Table 2: Service delivery per county versus national

	Baringo	National
TB CNR	92	210
TB/HIV Co infection rate	24.6%	35.6%
No. of TB Control zones	5	290
DX/100,000	5	4
Rx/100,000	6	7
Number of Rx	50	3320
Number of Dx	32	1920
No of ART /CCC sites	25	3000
DR TB Rx sites	4	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	273	311	282
Retreatments	79	63	63
PTB-	176	136	97
EPTB	119	111	129
SMND	16	21	26

Table 4: TB/HIV indicators per year[5]

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	96%	89%	88%
TB/HIV co-infection rate	24%	25%	25%
CPT Uptake	99%	99%	100 %
ART Uptake	92%	72%	82%

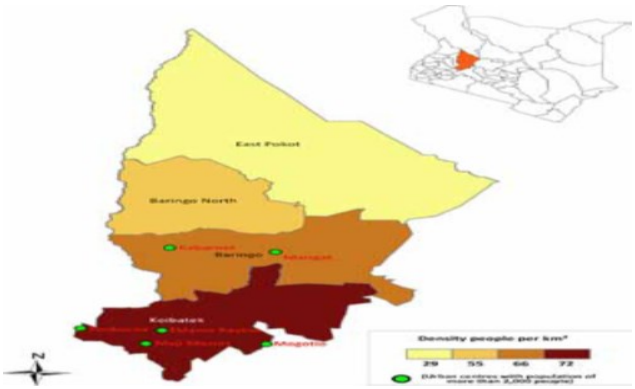


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	82%	1%	12%	3%	2%
Retreatment	61%	4%	21%	10%	4%
PTB-	71%	0	14%	11%	4%
EPTB	80%	0	10%	8%	2%
SMND	74%	0	10%	16%	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

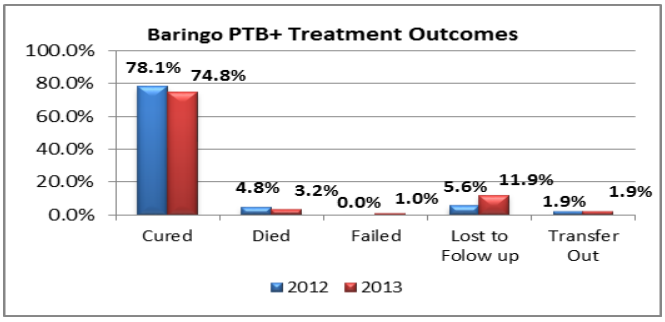


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	75	217
Food support	70	140

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	1	0
RR	0	0	0
PDR	0	0	0
MDR	1	2	2
Total	1	3	2

TB case finding:

Bomet reported a total of 1,759 cases with 10.6% being children. Among the cases, 94.8% were drawn from the public sector and 5.2% from the private sector

	Bomet	Kenya
Population	820,154	43,726,652
Urban Population	18%	29.9%
Population Density	332	75
Proportion of Males	49.7%	49.7%
HIV Prevalence	5.8%	6.04%
Doctor to Population ratio	1:103,000	<1:10000
Nurse to Population ratio	1:4210	1:3333
HF to Population ratio	1:4643	1:4693
HDI	0.602	0.535
Literacy Level	77.7%	72%
Poverty Headcount	46	46

Table 2: Service delivery per county versus national

	Bomet	National
TB CNR	212	210
TB/HIV Co infection rate	27%	35.6%
No. of TB Control zones	5	290
DX/100,000	4	4
Rx/100,000	4	7
Number of RX	43	3320
Number of Dx	30	1920
No of ART/CCC sites	40	3000
DR TB Rx sites	2	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	662	618	646
Retreatments	84	90	96
PTB-	409	359	504
EPTB	273	208	326
SMND	68	142	187

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	96%	94%	92%
TB/HIV co-infection rate	28%	28%	27%
CPT Uptake	100%	99%	99%
ART Uptake	90%	83%	83%

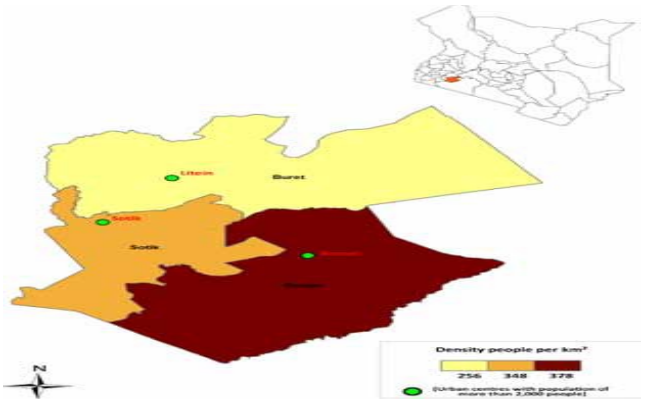


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	91%	0	5%	2%	2%
Retreatment	78%	3%	13%	3%	3%
PTB-	90%	0	1%	6%	3%
EPTB	91%	0	2%	7%	0
SMND	96%	0	1%	2%	1%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

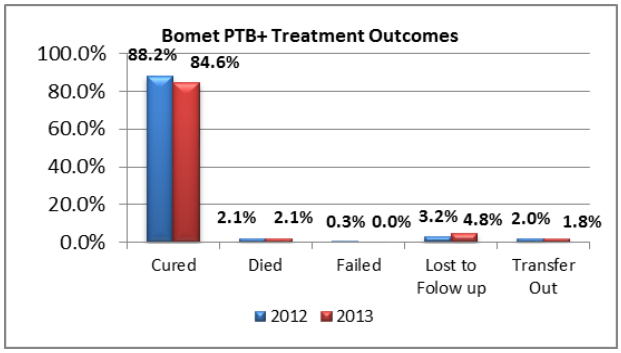


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	220	529
Food support	347	790

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	0	1
RR	0	0	0
PDR	0	0	0
MDR	1	1	0
Total	1	1	1

TB case finding:

Bungoma reported a total of 1,862 cases with 11% being children. Among the cases, 94.8% were drawn from the public sector and 5.2% from the private sector

	Bungoma	Kenya
Population	1,847,063	43,726,652
Urban Population	22%	29.9%
Population Density	515	75
Proportion of Males	48.8%	49.7%
HIV Prevalence	3.2%	6.04%
Doctor to Population ratio	1:45,000	<1:10000
Nurse to Population ratio	1:3315	1:3333
HF to Population ratio	1:11,171	1:4693
HDI	0.551	0.535
Literacy Level	71.5%	72%
Poverty Headcount	52	46

Table 2: Service delivery per county versus national

	Bungoma	National
TB CNR	98	210
TB/HIV Co infection rate	35.7%	35.6%
No. of TB Control zones	9	290
DX/100,000	7	4
Rx/100,000	5	7
Number of RX	76	3320
Number of Dx	97	1860
No of ART/CCC sites	40	3000
DR TB Rx sites	5	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	739	581	652
Retreatments	273	218	198
PTB-	671	572	571
EPTB	254	204	228
SMND	182	204	213

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	95%	87%	96%
TB/HIV co-infection rate	35%	37%	36%
CPT Uptake	100%	99%	99.8%
ART Uptake	92%	86%	94%

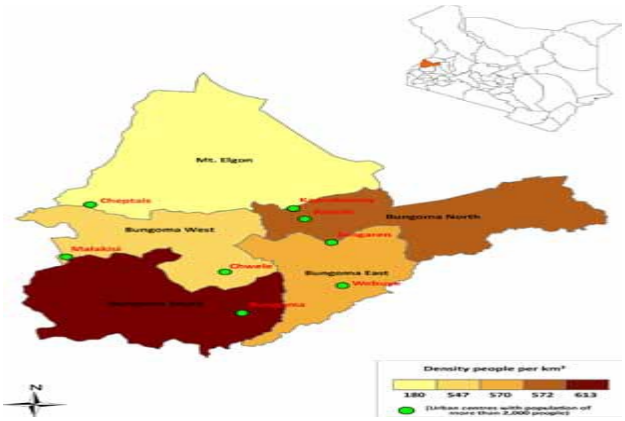


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	88%	1%	5%	5%	1%
Retreatment	72%	0	19%	6%	3%
PTB-	85%	0	4%	10%	1%
EPTB	86%	0	3%	10%	1%
SMND	89%	0	3%	7%	1%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

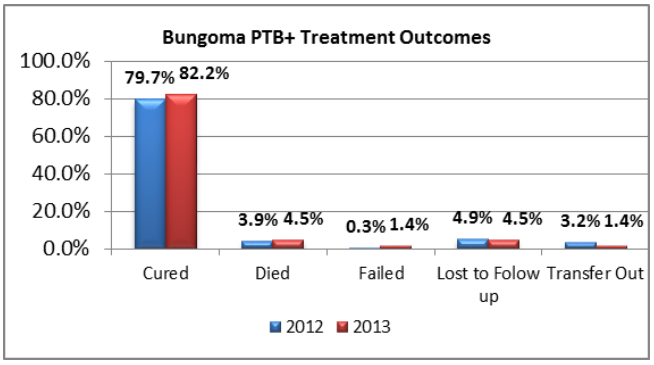


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	309	438
Food support	514	790

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	0	0
RR	0	1	0
PDR	1	0	0
MDR	0	0	4
Total	1	1	4

BUSIA

TB case finding:
Busia reported a total of 1,530 cases with 12.5% being children. Among the cases, 88% were drawn from the public sector and 9.8% from the private sector.

	Busia	Kenya
Population	552,754	43,726,652
Urban Population	16%	29.9%
Population Density	488	75
Proportion of Males	47.5%	49.7%
HIV Prevalence	6.8%	6.04%
Doctor to Population ratio	1:31,000	<1:10000
Nurse to Population ratio	1:1148	1:3333
HF to Population ratio	1:5811	1:4693
HDI	0.458	0.535
Literacy Level	62.7%	72%
Poverty Headcount	65	46

Table 2: Service delivery per county versus national

	Busia	National
TB CNR	269	210
TB/HIV Co infection rate	48.4%	35.6%
No. of TB Control zones	7	290
DX/100,000	4	4
Rx/100,000	6	7
Number of RX	43	3320
Number of Dx	35	1920
No of ART/CCC sites	37	3000
DR TB Rx sites	5	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	533	447	476
Retreatments	259	45	220
PTB-	496	431	409
EPTB	270	220	185
SMND	127	148	240

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	96%	93%	97%
TB/HIV co-infection rate	49%	46%	48%
CPT Uptake	100%	100%	99.6%
ART Uptake	93%	90%	96%

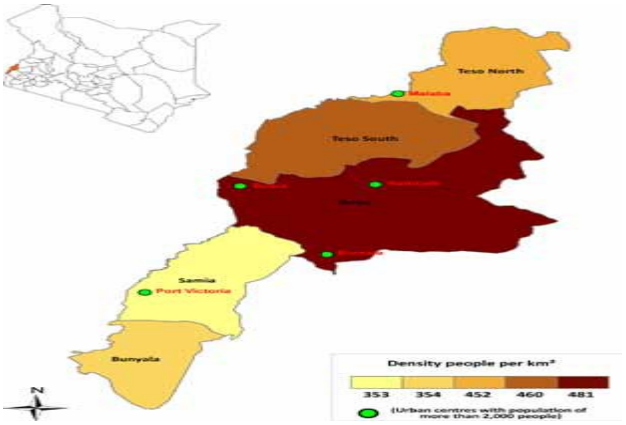


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	85%	2%	6%	5%	2%
Retreatment	71%	2%	12%	13%	2%
PTB-	81%	0	6%	12%	1%
EPTB	81%	0	6%	12%	1%
SMND	80%	0	7%	10%	3%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

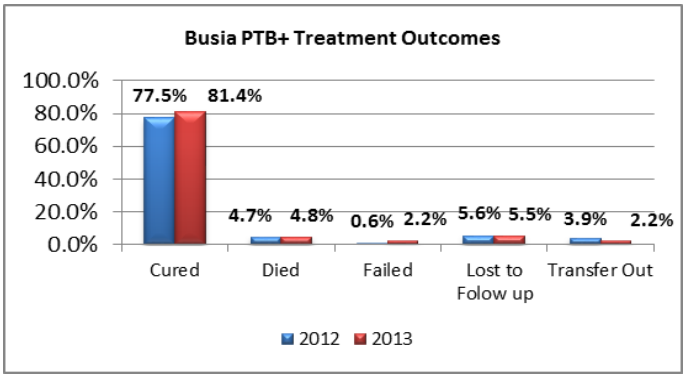


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	336	269
Food support	675	722

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	0	0
RR	0	1	0
PDR	1	0	1
MDR	7	4	1
Total	8	5	2

TB case finding:

Elgeyo Marakwet reported a total of 522 cases with 11.7% being children. Among the cases, 88% were drawn from the public sector and 9.8% from the private sector.

	Elgeyo Marakwet	Kenya
Population	419,030	43,726,652
Urban Population	14%	29.9%
Population Density	139	75
Proportion of Males	49.7%	49.7%
HIV Prevalence	2.5%	6.04%
Doctor to Population ratio	1:62,000	<1:10000
Nurse to Population ratio	1:2434	1:3333
HF to Population ratio	1:3009	1:4693
HDI	0.585	0.535
Literacy Level	66.75%	72%
Poverty Headcount	55	46

Table 2: Service delivery per county versus national

	Elgeyo Marakwet	National
TB CNR	121	210
TB/HIV Co infection rate	27%	35.6%
No. of TB Control zones	7	290
DX/100,000	6	4
Rx/100,000	7	7
Number of RX	27	3320
Number of Dx	20	1920
No of ART/CCC sites	13	3000
DR TB Rx sites	2	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	163	170	225
Retreatments	45	27	35
PTB-	140	129	112
EPTB	84	85	58
SMND	10	45	92

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	99%	81%	87%
TB/HIV co-infection rate	27%	31%	27%
CPT Uptake	98%	100%	100%
ART Uptake	67%	72%	77%

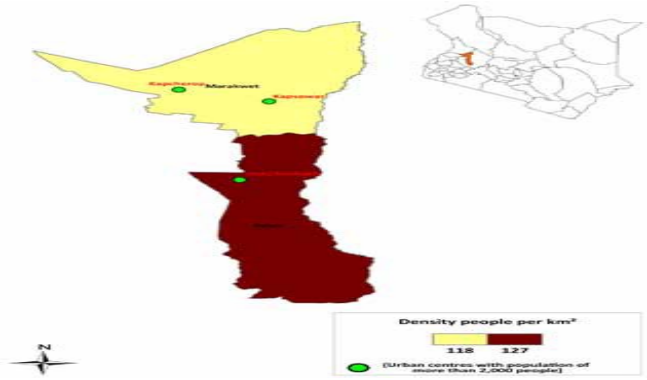


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	84%	0	10%	4%	2%
Retreatment	80%	0	10%	10%	0
PTB-	77%	0	6%	16%	1%
EPTB	83%	0	11%	5%	1%
SMND	80%	0	5%	15%	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

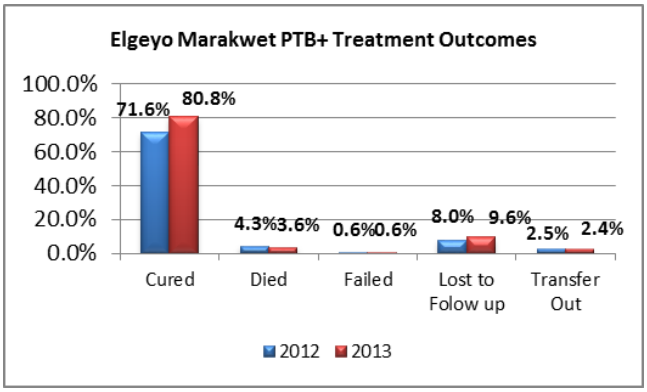


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	44	129
Food support	84	130

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	0	0
RR	1	0	1
PDR	0	0	0
MDR	0	0	2
Total	1	0	3

TB case finding:

Embu reported a total of 1,364 cases with 16.9% being children. Among the cases, 91.3% were drawn from the public sector and 6.3% from the private sector.

	Embu	Kenya
Population	584,620	43,726,652
Urban Population	16%	29.9%
Population Density	208	75
Proportion of Males	49.3%	49.7%
HIV Prevalence	3.7%	6.04%
Doctor to Population ratio	1:13,000	<1:10000
Nurse to Population ratio	1:1060	1:3333
HF to Population ratio	1:3610	1:4693
HDI	0.606	0.535
Literacy Level	77.1%	72%
Poverty Headcount	41	46

Table 2: Service delivery per county versus national

	Embu	National
TB CNR	230	210
TB/HIV Co infection rate	22.8%	35.6%
No. of TB Control zones	4	290
DX/100,000	7	4
Rx/100,000	14	7
Number of RX	84	3320
Number of Dx	51	1920
No of ART/CCC sites	26	3000
DR TB Rx sites	8	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	573	533	582
Retreatments	154	120	104
PTB-	347	466	341
EPTB	127	103	134
SMND	239	211	203

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	97%	98%	97%
TB/HIV co-infection rate	25%	25%	23%
CPT Uptake	97%	100%	99%
ART Uptake	93%	91%	92%

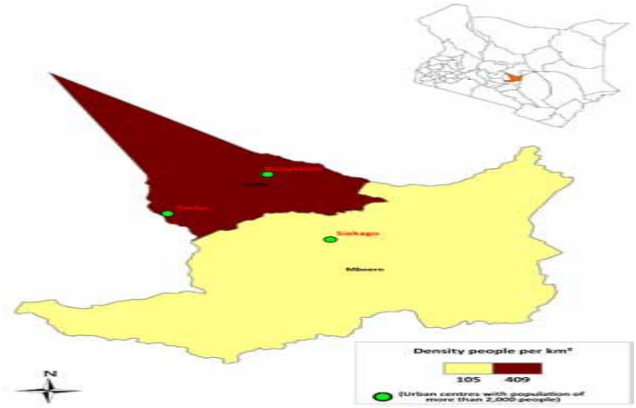


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	91%	0.4%	5%	2%	1.6%
Retreatment	90%	0	6%	3%	1%
PTB-	91%	0	3%	4%	2%
EPTB	88%	0	5%	5%	2%
SMND	91%	0	3%	5%	1%

Figure 1: Comparison of NPTB+ treatment outcomes 2012&2013

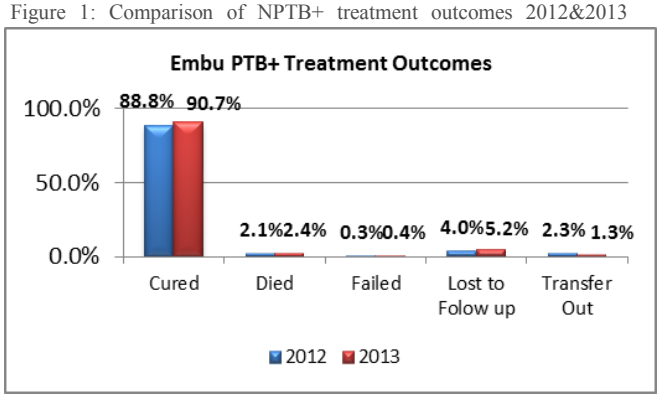


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	154	415
Food support	196	596

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	1	0
RR	1	0	2
PDR	0	0	0
MDR	3	1	2
Total	4	2	4

TB case finding:

Garissa reported a total of 1145 cases with 16.2% being children. Among the cases 55.1% were drawn from the public sector and 38.7% from the private sector.

	Garissa	Kenya
Population	705,627	43,726,652
Urban Population	24%	29.9%
Population Density	16	75
Proportion of Males	53.8%	49.7%
HIV Prevalence	2.1%	6.04%
Doctor to Population ratio	1:52,000	<1:10000
Nurse to Population ratio	1:2316	1:3333
HF to Population ratio	1:5770	1:4693
HDI	0.453	0.535
Literacy Level	38%	72%
Poverty Headcount	55	46

Table 2: Service delivery per county versus national

	Garissa	National
TB CNR	162	210
TB/HIV Co infection rate	4%	35.6%
No. of TB Control zones	5	290
DX/100,000	5	4
Rx/100,000	5	7
Number of RX	5	3320
Number of Dx	33	1920
No of ART/CCC sites	12	3000
DR TB Rx sites	1	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	526	538	438
Retreatment	129	96	85
PTB-	270	268	306
EPTB	254	204	228
SMND	182	107	88

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	100%	99%	100%
TB/HIV co-infection rate	4%	4%	4%
CPT Uptake	98%	100%	100%
ART Uptake	86%	89%	86.7%

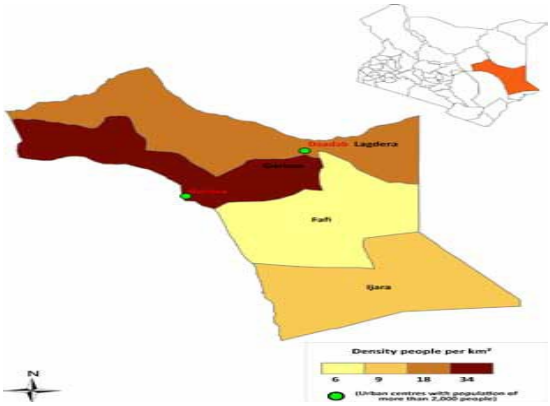


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	89%	0.5%	2.5%	4%	4%
Retreatment	82%	7%	0	7%	4%
PTB-	94%	0	2%	2%	2%
EPTB	95%	0	1%	3%	1%
SMND	93%	0	0	5%	2%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

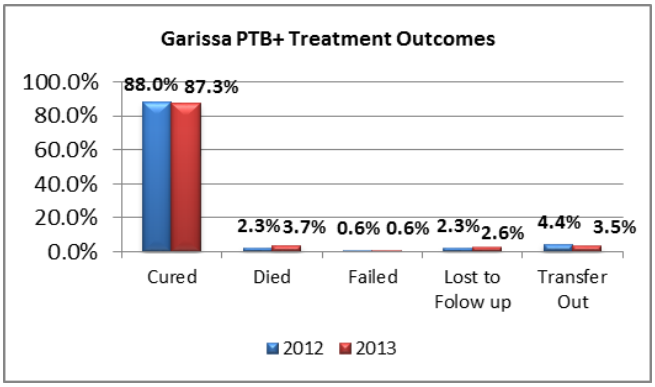


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	25	674
Food support	36	891

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	0	0
RR	0	1	0
PDR	0	0	0
MDR	26	71	47
Total	26	72	47

HOMA BAY

TB case finding:
Homa Bay reported a total of 1145 cases with 16.2% being children. Among the cases 55.1% were drawn from the public sector and 38.7% from the private sector.

	Homa Bay	Kenya
Population	1,091,515	43,726,652
Urban Population	14%	29.9%
Population Density	343	75
Proportion of Males	48%	49.7%
HIV Prevalence	25.7%	6.04%
Doctor to Population ratio	1:44,000	<1:10000
Nurse to Population ratio	1:1949	1:3333
HF to Population ratio	1:5100	1:4693
HDI	0.455	0.535
Literacy Level	73%	72%
Poverty Headcount	44	46

Table 2: Service delivery per county versus national

	Homa Bay	National
TB CNR	263	210
TB/HIV Co infection rate	66.7%	35.6%
No. of TB Control zones	5	290
DX/100,000	5	4
Rx/100,000	11	7
Number of RX	143	3320
Number of Dx	75	1920
No of ART/CCC sites	197	3000
DR TB Rx sites	16	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	1053	929	883
Retreatment	322	224	224
PTB-	1937	1529	1121
EPTB	636	549	527
SMND	358	261	153

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	98%	99%	99%
TB/HIV co-infection rate	72%	74%	67%
CPT Uptake	100%	99%	99 %
ART Uptake	97%	95%	88%

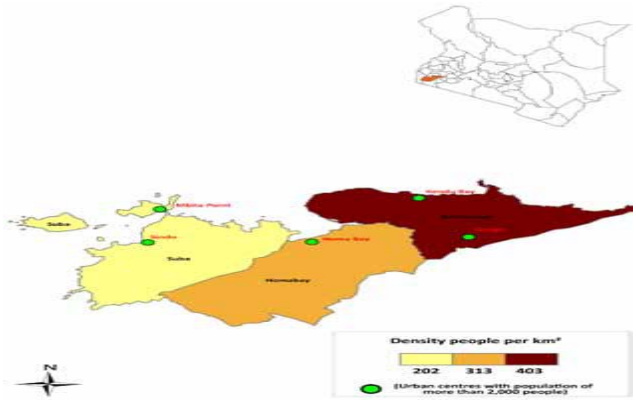


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	87%	0	4%	7%	2%
Retreatment	81%	3%	4%	11%	1%
PTB-	81%	0	4%	11%	4%
EPTB	76%	0	5%	14%	5%
SMND	77%	0	5%	14%	4%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

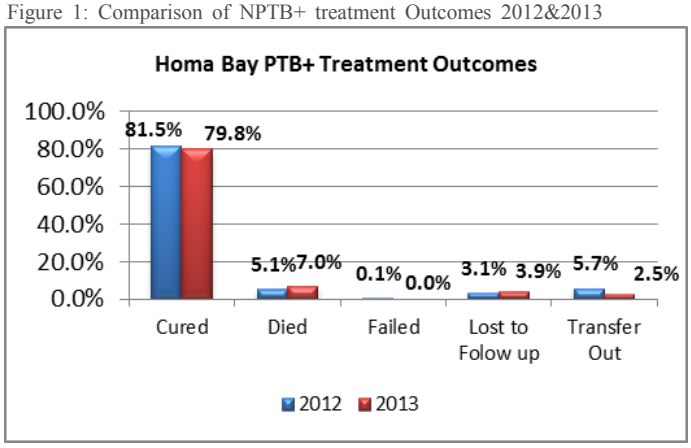


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	895	324
Food support	1487	695

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	0	0
RR	0	0	0
PDR	2	0	1
MDR	11	8	8
Total	13	8	9

TB case finding:

Isiolo reported a total of 564 cases with 12.6% being children. Among the cases 99.6% were drawn from the public sector and 0.4% from the private sector.

	Isiolo	Kenya
Population	162,283	43,726,652
Urban Population	42.8%	29.9%
Population Density	7	75
Proportion of Males	51.4%	49.7%
HIV Prevalence	4.2%	6.04%
Doctor to Population ratio	1:143,000	<1:10000
Nurse to Population ratio	1:3115	1:3333
HF to Population ratio	1:3495	1:4693
HDI	0.458	0.535
Literacy Level	42.8%	72%
Poverty Headcount	63	46

Table 2: Service delivery per county versus national

	Isiolo	National
TB CNR	336	210
TB/HIV Co infection rate	26.5%	35.6%
No. of TB Control zones	3	290
DX/100,000	12	4
Rx/100,000	15	7
Number of RX	30	3320
Number of Dx	10	1920
No of ART/CCC sites	13	3000
DR TB Rx sites	3	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	211	201	187
Retreatments	52	46	56
PTB-	145	190	158
EPTB	77	107	118
SMND	34	6	45

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	94%	94%	98%
TB/HIV co-infection rate	25%	20%	27%
CPT Uptake	99%	100%	100%
ART Uptake	97%	94%	97%

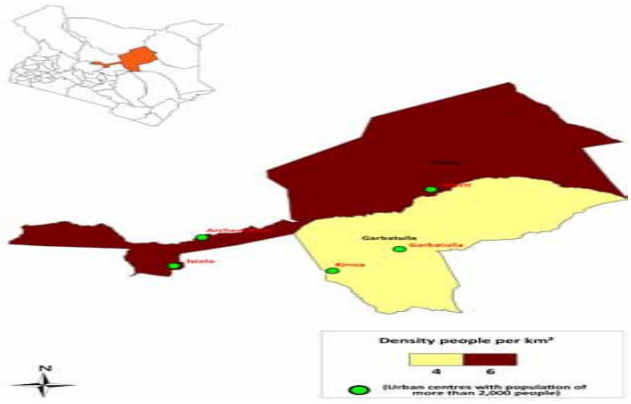


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	97%	0	1.5%	1.5%	0
Retreatment	78%	0	12.5%	12.5%	0
PTB-	97%	0	1.5%	0.5%	1%
EPTB	96%	0	3%	1%	0
SMND	100%	0	0	0	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

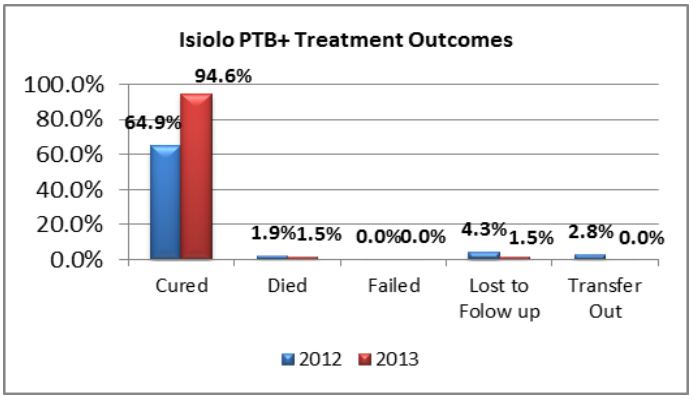


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	91	236
Food Support	124	282

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	0	3
PDR	0	0	0
MDR	1	2	1
Total	**1**	**2**	**4**

TB case finding:

Kajiado reported a total of 1649 cases with 11.8% being children. Among the cases 80.5% were drawn from the public sector and 18.6% from the private sector.

	Kajiado	Kenya
Population	778,394	43,726,652
Urban Population	41%	29.9%
Population Density	36	75
Proportion of Males	50.2%	49.7%
HIV Prevalence	4.4%	6.04%
Doctor to Population ratio	1:76,000	<1:10000
Nurse to Population ratio	1:7723	1:3333
HF to Population ratio	1:3083	1:4693
HDI	0.594	0.535
Literacy Level	65.2%	72%
Poverty Headcount	12	46

Table 2: Service delivery per county versus national

	Kajiado	National
TB CNR	209	210
TB/HIV Co infection rate	30.1%	35.6%
No. of TB Control zones	5	290
DX/100,000	4	4
Rx/100,000	3	7
Number of RX	35	3320
Number of Dx	31	1920
No of ART/CCCsites	27	3000
DR TB Rx sites	7	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	677	596	682
Retreatment	138	153	139
PTB-	458	535	461
EPTB	219	201	215
SMND	152	125	152

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	97%	95%	94 %
TB/HIV co-infection rate	27%	33%	30 %
CPT Uptake	99%	99%	100 %
ART Uptake	88%	88%	84 %

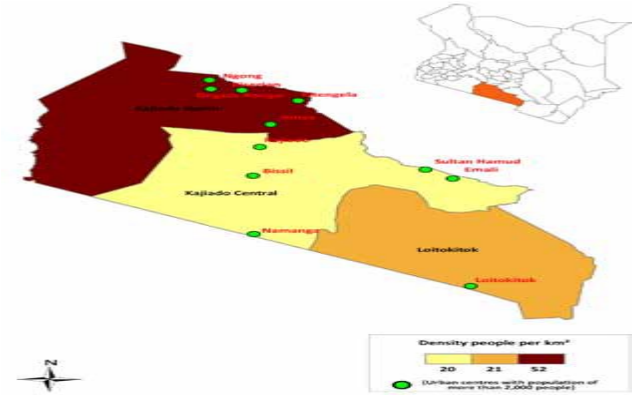


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	91%	1%	4%	1%	3%
Retreatment	79%	0	11%	2%	8%
PTB-	86%	0	5%	5%	4%
EPTB	81%	0	7%	5%	7%
SMND	81%	0	7%	7%	5%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

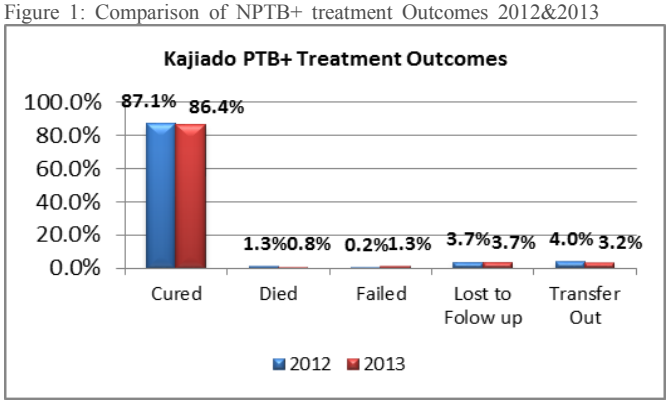


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	212	450
Food support	449	1037

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	0	1
PDR	0	0	0
MDR	5	3	5
Total	**5**	**3**	**6**

TB case finding:

Kakamega reported a total of 2334 cases with 9.7% being children. Among the cases 83% were drawn from the public sector and 16.2% from the private sector.

	Kakamega	Kenya
Population	1,880,718	43,726,652
Urban Population	15%	29.9%
Population Density	617	75
Proportion of Males	48.2%	49.7%
HIV Prevalence	5.9%	6.04%
Doctor to Population ratio	1:69,000	<1:10000
Nurse to Population ratio	1:3122	1:3333
HF to Population ratio	1:7538	1:4693
HDI	0.533	0.535
Literacy Level	75.1%	72%
Poverty Headcount	51%	46

Table 2: Service delivery per county versus national

	Kakamega	National
TB CNR	122	210
TB/HIV Co infection rate	37%	35.6%
No. of TB Control zones	12	290
DX/100,000	5	4
Rx/100,000	6	7
Number of RX	162	3320
Number of Dx	70	1920
No of ART/CCC sites	84	3000
DR TB Rx sites	4	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	927	836	819
Retreatment	327	277	248
PTB-	772	773	620
EPTB	609	438	222
SMND	309	211	425

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	96%	94%	97%
TB/HIV co-infection rate	40%	37%	37%
CPT Uptake	100%	99%	100%
ART Uptake	94%	86%	90%

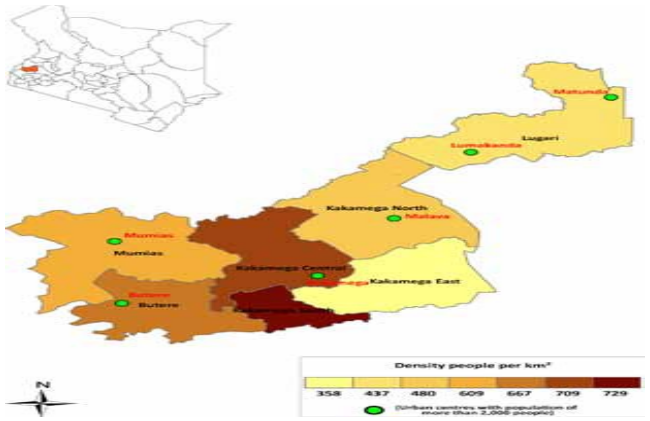


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	92%	1%	2%	3%	2%
Retreatment	75%	1%	8%	11%	5%
PTB-	91%	0	2%	6%	1%
EPTB	84%	0	5%	10%	1%
SMND	81%	0	4%	14%	1%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

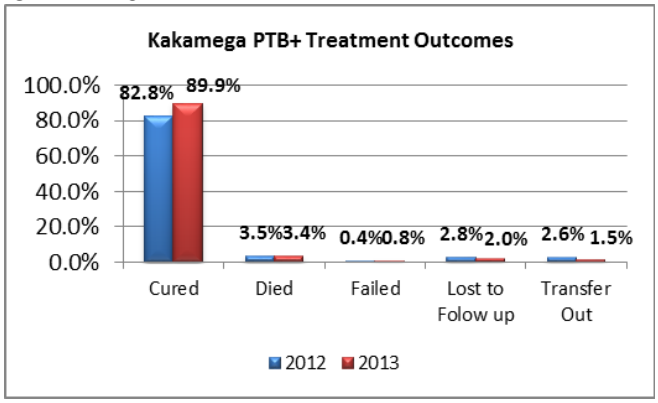


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	409	581
Food support	678	103

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	1	0	1
PDR	0	0	0
MDR	1	3	0
Total	**2**	**3**	**1**

TB case finding:

Kericho reported a total of 2334 cases with 9.7% being children. Among the cases 83% were drawn from the public sector and 16.2% from the private sector.

	Kericho	Kenya
Population	858,833	43,726,652
Urban Population	28%	29.9%
Population Density	347	75
Proportion of Males	50.4%	49.7%
HIV Prevalence	3.4%	6.04%
Doctor to Population ratio	1:15,000	<1:10000
Nurse to Population ratio	1:1823	1:3333
HF to Population ratio	1:4957	1:4693
HDI	0.611	0.535
Literacy Level	82%	72%
Poverty Headcount	41%	46

Table 2: Service delivery per county versus national

	Kericho	National
TB CNR	210	210
TB/HIV Co infection rate	30%	35.6%
No. of TB Control zones	12	290
DX/100,000	4	4
Rx/100,000	6	7
Number of RX	64	3320
Number of Dx	49	1920
No of ART/CCC sites	28	3000
DR TB Rx sites	4	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	787	805	827
Retreatment	83	115	119
PTB-	582	463	529
EPTB	280	438	261
SMND	70	47	100

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	95%	94%	95%
TB/HIV co-infection rate	33%	32%	30%
CPT Uptake	100%	100%	99.8%
ART Uptake	88%	83%	86%

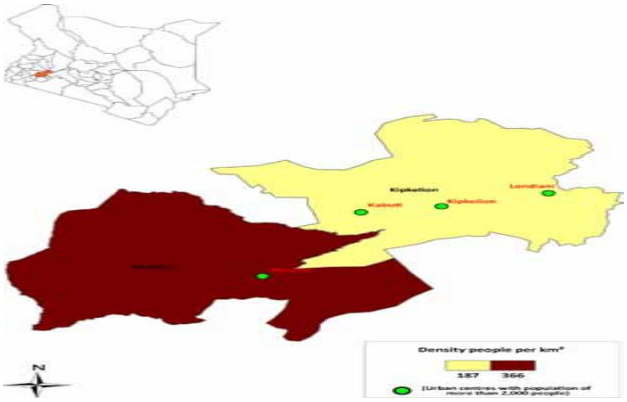


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	89%	0.5%	7%	2.5%	1%
Retreatment	88%	0	7%	5%	0%
PTB-	87%	0	4%	7%	2%
EPTB	84%	0	4%	9%	3%
SMND	96%	0	0	2%	2%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

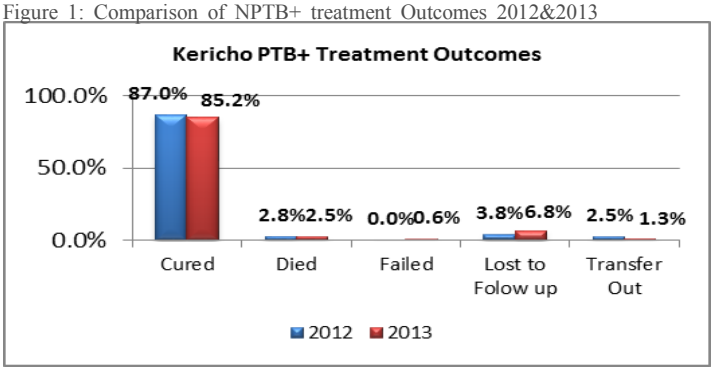


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	265	602
Food support	398	921

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	1	0	1
PDR	0	0	0
MDR	1	1	5
Total	**2**	**1**	**6**

TB case finding:
Kiambu reported a total of 3992 cases with 8% being children. Among the cases 65% were drawn from the public sector and 27% from the private sector.

	Kiambu	National
Population	1,651,014	43,726,652
Urban Population	61%	29.9%
Population Density	649	75
Proportion of Males	53.3%	49.7%
HIV Prevalence	4.4%	6.04%
Doctor to Population ratio	1:15,000	<1:10000
Nurse to Population ratio	1:1466	1:3333
HF to Population ratio	1:3715	1:4693
HDI	0.6	0.535
Literacy Level	83.9	72%
Poverty Headcount	6.5	46

Table 2: Service delivery per county versus national

	Kiambu	National
TB CNR	242	210
TB/HIV Co infection rate	33%	35.6%
No. of TB Control zones	9	290
DX/100,000	6	4
Rx/100,000	6	7
Number of Rx	89	3320
Number of Dx	83	1920
No of ART/CCC sites	55	3000
DR TB Rx sites	18	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	1671	1596	1573
Retreatments	329	348	432
PTB-	1168	1063	1087
EPTB	686	683	591
SMND	264	318	309

Table 4 TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	97%	96%	93%
TB/HIV co-infection rate	34%	32%	33%
CPT Uptake	99%	99%	99%
ART Uptake	81%	84%	80%

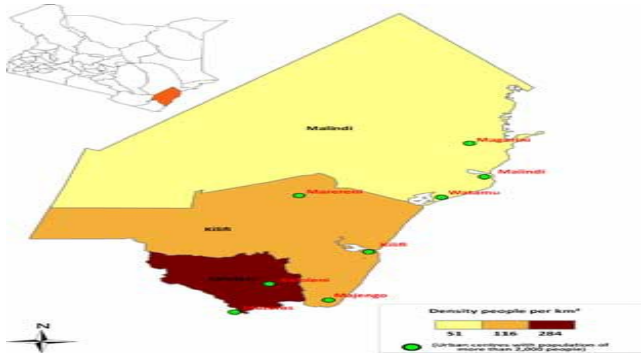


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	87%	1%	6%	3%	3%
Retreatment	74%	2%	8%	10%	6%
PTB-	83%	N/A	4%	8%	5%
EPTB	84%	N/A	4%	8%	4%
SMND	84%	N/A	3%	8%	5%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

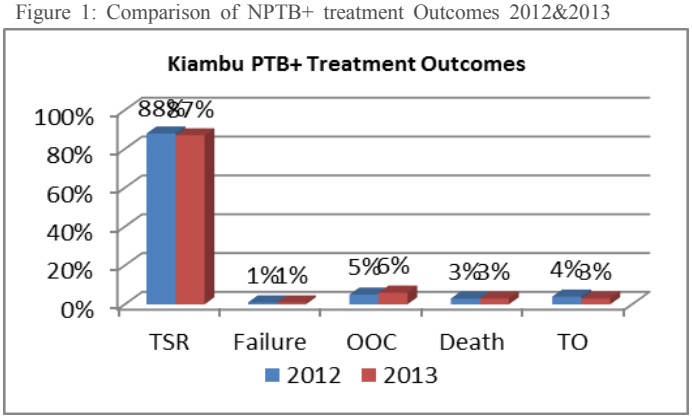


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	539	993
Food support	498	918

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**4**	**4**
RR	0	1	2
PDR	0	2	1
MDR	2	3	2
Total	**2**	**10**	**9**

TB case finding:
Kilifi reported a total of 2378 cases with 13% being children. Among the cases 75% were drawn from the public sector and 23% from the private sector.

	Kilifi	National
Population	1,244,420	43,726,652
Urban Population	26%	29.9%
Population Density	98.7	75
Proportion of Males	48.8%	49.7%
HIV Prevalence	3.7%	6.04%
Doctor to Population ratio	1:48,000	<1:10000
Nurse to Population ratio	1:2655	1:3333
HF to Population ratio	1:4,762	1:4693
HDI	0.54	0.535
Literacy Level	55%	72%
Poverty Headcount	25.8%	46

Table 2: Service delivery per county versus national

	Kilifi	National
TB CNR	186/100000	210
TB/HIV Co infection rate	33%	35.6%
No. of TB Control zones	7	290
DX/100,000	4	4
Rx/100,000	7	7
Number of Rx	89	3320
Number of Dx	60	1920
No of ART/CCC sites	46	3000
DR TB Rx sites	21	329

Table 3: Type of TB per year

Type of TB	2012	2013		2014
PTB+	848	810		786
Retreatments	210	188		220
PTB-	904	732		818
EPTB	269	238		264
SMND	334	232		290

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
% tested for HIV	98%	98%	96%
TB/HIV co-infection rate	28%	28%	33%
% on CPT	98%	99%	99%
% on ART	89%	89%	93%

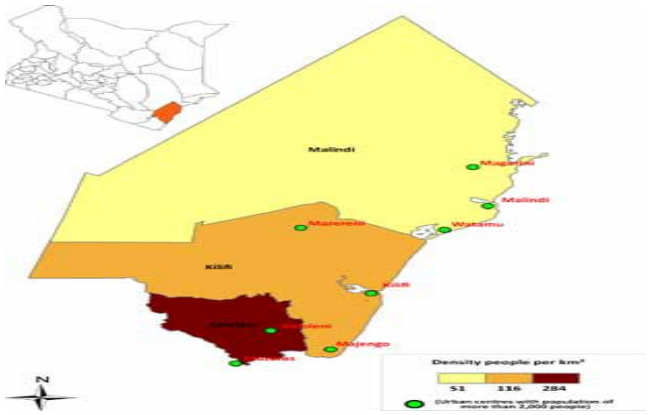


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	87%	1%	6%	3%	3%
Retreatment	74%	2%	8%	10%	6%
PTB-	83%	0	4%	8%	5%
EPTB	84%	0	4%	8%	4%
SMND	84%	0	3%	8%	5%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

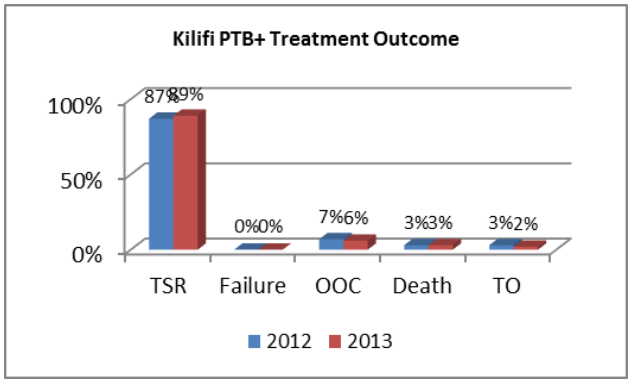


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	390	623
Food support	378	603

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	0	0
PDR	0	0	0
MDR	6	3	5
Total	**6**	**3**	**5**

TB case finding:

Kirinyaga reported a total of 1469 cases with 12% being children. Among the cases 86% were drawn from the public sector and 14% from the private sector.

	Kirinyaga	National
Population	598,031	43,726,652
Urban Population	16%	29.9%
Population Density	386	75
Proportion of Males	49.3%	49.7%
HIV Prevalence	4%	6.04%
Doctor to Population ratio	1:3100	<1:10000
Nurse to Population ratio	1:1100	1:3333
HF to Population ratio	1:2182	1:4693
HDI	0.59	0.535
Literacy Level	73.1	72%
Poverty Headcount	5.9	46

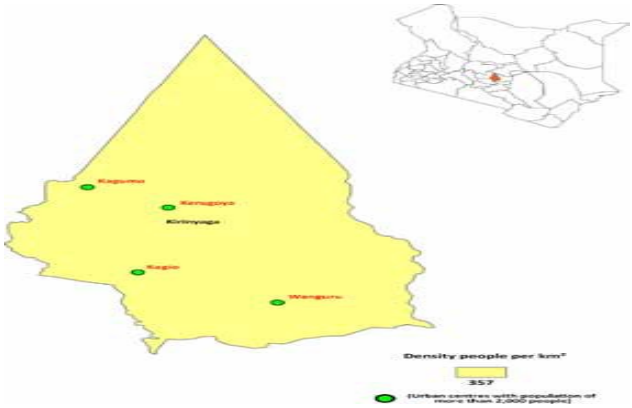


Table 2: Service delivery per county versus national

	Kirinyaga	National
TB CNR	235	210
TB/HIV Co infection rate	22%	35.6%
No. of TB Control zones	4	290
DX/100,000	9	4
Rx/100,000	5	7
Number of Rx	36	3320
Number of Dx	21	1920
No of ART/CCC sites	17	3000
DR TB Rx sites	14	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	614	607	673
Retreatments	127	123	179
PTB-	339	346	292
EPTB	206	181	170
SMND	180	226	155

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
No tested for HIV	98%	96%	98%
TB/HIV co-infection rate	22%	23%	22%
No on CPT	100%	99%	99%
No on ART	89%	86%	87%

Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	88%	1%	6%	4%	1%
Retreatment	86%	0	7%	7%	0
PTB-	83%	N/A	3%	12%	2%
EPTB	78%	N/A	6%	15%	1%
SMND	85%	N/A	4%	8%	3%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

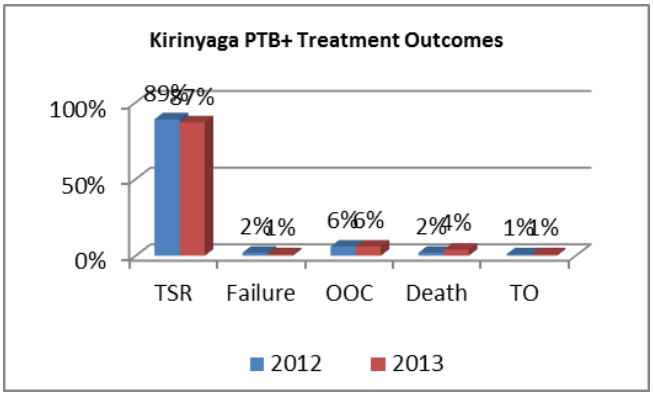


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	173	549
Food support	168	527

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**2**	**2**
RR	1	1	4
PDR	0	0	0
MDR	4	1	3
Total	**5**	**4**	**9**

TB case finding:

Kisii reported a total of 1822 cases with 8% being children. Among the cases 89% were drawn from the public sector and 9% from the private sector.

	Kisii	National
Population	1304981	43,726,652
Urban Population	22%	29.9%
Population Density	962.5	75
Proportion of Males	48.3%	49.7%
HIV Prevalence	8.9%	6.04%
Doctor to Population ratio	1:378000	<1:10000
Nurse to Population ratio	1:5703	1:3333
HF to Population ratio	1:6941	1:4693
HDI	0.55	0.535
Literacy Level	77.5	72%
Poverty Headcount	21.7	46

Table 2: Service delivery per county versus national

	Kisii	National
TB CNR	135	210
TB/HIV Co infection rate	36%	35.6%
No. of TB Control zones	9	290
DX/100,000	4	4
Rx/100,000	7	7
Number of Rx	124	3320
Number of Dx	77	1920
No of ART/CCC sites	115	3000
DR TB Rx sites	19	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	896	807	830
Retreatments	207	127	123
PTB-	602	631	644
EPTB	193	211	146
SMND	182	90	79

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
No tested for HIV	97%	96	98%
TB/HIV co-infection rate	37%	37	36%
No on CPT	99%	99%	99%
No on ART	90%	92%	96%

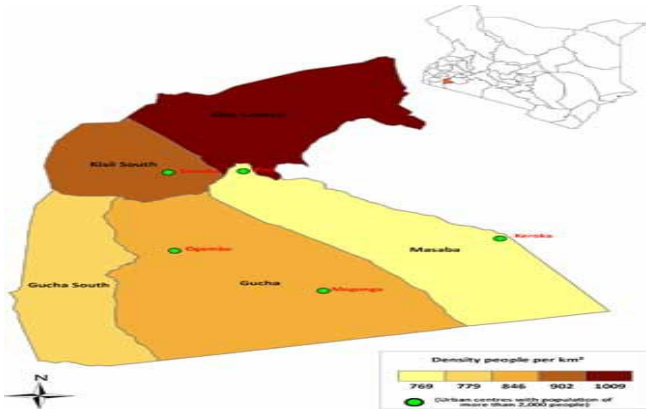


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	91%	0	3%	4%	2%
Retreatment	64%	0	15%	12%	9%
PTB-	84%	N/A	4%	10%	2%
EPTB	85%	N/A	5%	8%	2%
SMND	84%	N/A	4%	10%	2%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

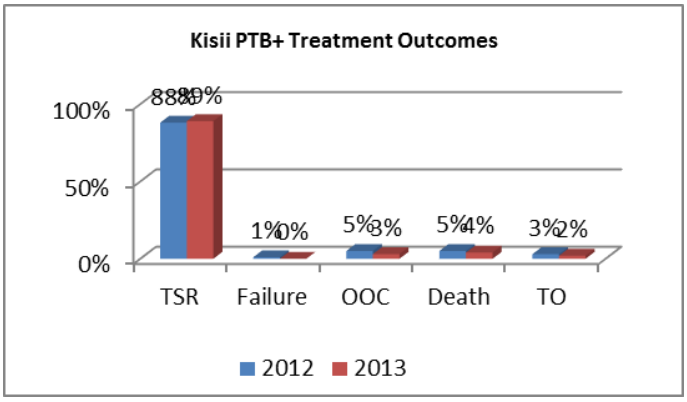


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	336	446
Food support	310	410

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**2**	**1**
RR	0	0	1
PDR	1	0	0
MDR	3	6	6
Total	**4**	**8**	**8**

TB case finding:

Kisumu reported a total of 3355 cases with 10% being children. Among the cases 67% were drawn from the public sector and 30% from the private sector.

	Kisumu	National
Population	1097307	43,726,652
Urban Population	52%	29.9%
Population Density	508	75
Proportion of Males	49%	49.7%
HIV Prevalence	18.7%	6.04%
Doctor to Population ratio	1:15000	<1:10000
Nurse to Population ratio	1:1433	1:3333
HF to Population ratio	1:6374.40	1:4693
HDI	0.4939	0.535
Literacy Level	80.3%	72%
Poverty Headcount	14.2	46

Table 2: Service delivery per county versus national

	Kisumu	National
TB CNR	302	210
TB/HIV Co infection rate	64%	35.6%
No. of TB Control zones	7	290
DX/100,000	7	4
Rx/100,000	10	7
Number of Rx	109	3320
Number of Dx	80	1920
No of ART/CCC sites	106	3000
DR TB Rx sites	75	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	1367	1152	1298
Retreatments	289	302	317
PTB-	1391	1200	1003
EPTB	554	101	480
SMND	422	256	257

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
No tested for HIV	95%	96%	95%
TB/HIV co-infection rate	67%	67%	64%
No on CPT	99%	99%	99%
No on ART	85%	85%	93%

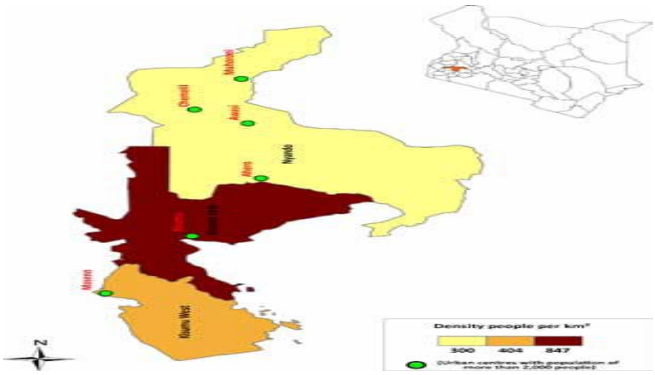


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	84%	1%	4%	7%	5%
Retreatment	78%	0	6%	10%	6%
PTB-	79%	N/A	5%	12%	4%
EPTB	80%	N/A	4%	12%	4%
SMND	78%	N/A	6%	11%	5%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

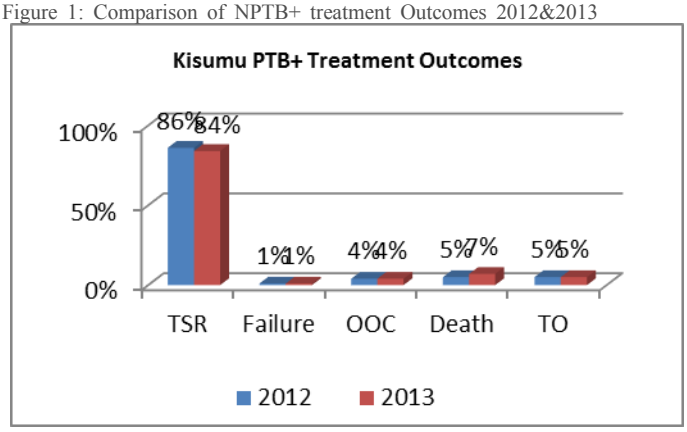


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	1186	580
Food support	1100	522

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**1**
RR	0	0	0
PDR	0	0	1
MDR	6	5	10
Total	**6**	**5**	**12**

TB case finding:

Kitui reported a total of 2059 cases with 7% being children. Among the cases 91% were drawn from the public sector and 8% from the private sector.

	Kitui	National
Population	1,136,087	43,726,652
Urban Population	14%	29.9%
Population Density	37.3	75
Proportion of Males	43.7	49.7%
HIV Prevalence	4.8%	6.04%
Doctor to Population ratio	1:26000	<1:10000
Nurse to Population ratio	1:1770	1:3333
HF to Population ratio	1:3421	1:4693
HDI	0.53	0.535
Literacy Level	63.2%	72%
Poverty Headcount	22.2%	46

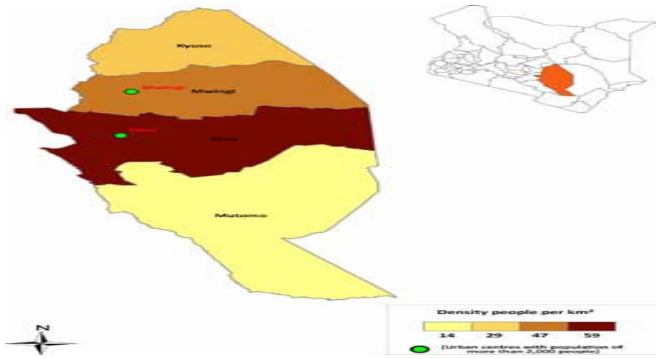


Table 2: Service delivery per county versus national

	Kitui	National
TB CNR	177/100000	210
TB/HIV Co infection rate	28%	35.6%
No. of TB Control zones	9	290
DX/100,000	4	4
Rx/100,000	11	7
Number of Rx	150	3320
Number of Dx	60	1920
No of ART/CCC sites	62	3000
DR TB Rx sites	18	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	1027	927	985
Retreatments	210	201	235
PTB-	772	556	471
EPTB	354	263	299
SMND	118	85	69

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
No tested for HIV	98%	97%	99%
TB/HIV co-infection rate	26%	28%	28%
No on CPT	99%	99%	100%
No on ART	98%	90%	96%

Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	92%	1%	3%	2%	2%
Retreatment	84%	4%	6%	2%	4%
PTB-	87%	N/A	1%	10%	2%
EPTB	87%	N/A	1%	11%	1%
SMND	94%	N/A	2%	4%	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

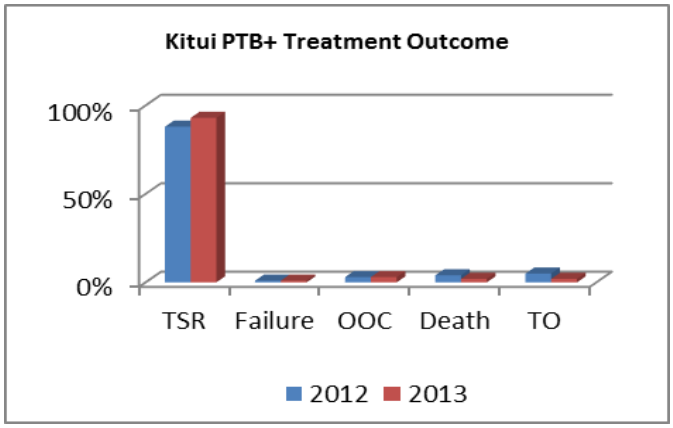


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	360	823
Food support	318	706

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	0	1
PDR	0	0	0
MDR	2	5	5
Total	**2**	**5**	**6**

TB case finding:

Kwale reported a total of 1175 cases with 9.8% being children. Among the cases 90% were drawn from the public sector and 10% from the private sector

	Kwale	Kenya
Population	736,059	43,726,652
Urban Population	18%	29.9%
Population Density	89	75
Proportion of Males	48.6%	49.7%
HIV Prevalence	5.7%	6.04%
Doctor to Population ratio	1:46,000	< 1:10,000
Nurse to Population ratio	1:3080	1:3333
HF to Population ratio	1:6632	1:4693
HDI	0.477	0.535
Literacy Level	68.1%	72%
Poverty Headcount	73%	46

Table 2: Service delivery per county versus national

	Kwale	National
TB CNR	158	210
TB/HIV Co infection rate	28%	35.6%
No. of TB Control zones	5	279
DX/100,000	5	4
Rx/100,000	6	7
Number of Rx	87	3320
Number of Dx	38	1920
No of ART/CCC sites	47	3000
DR TB Rx sites	4	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	500	425	391
Retreatments	150	154	116
PTB-	371	293	362
EPTB	227	206	207
SMND	106	94	99

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	97%	95%	91%
TB/HIV co-infection rate	28%	26%	28%
CPT Uptake	97%	97%	95%
ART Uptake	81%	73%	76%

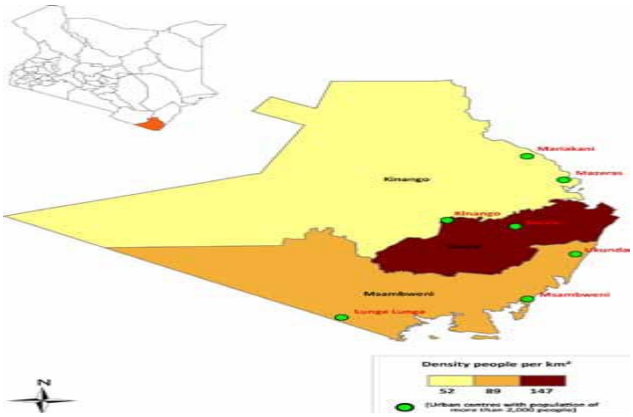


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	89.8%	2%	21%	15%	5%
Retreatment	76.5%	0	7%	4%	1%
PTB-	83.6%	0	13%	33%	3%
EPTB	84.5%	0	11%	18%	3%
SMND	79.8%	0	8%	8%	3%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

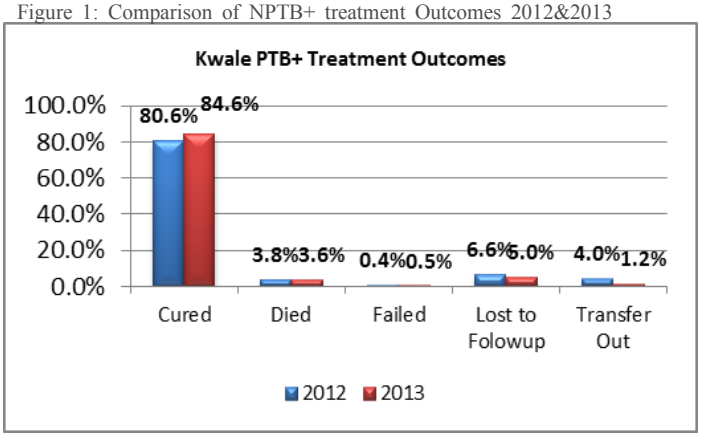


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	143	390
Food support	272	718

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	0	0
PDR	0	0	0
MDR	1	4	1
Total	**1**	**4**	**1**

LAIKIPIA

TB case finding:

Laikipia reported a total of 786 cases with 5.2% being children. Most cases were drawn from the public sector and a few from the private sector.

	Laikipia	Kenya
Population	452,132	43,726,652
Urban Population	25%	29.9%
Population Density	48	75
Proportion of Males	50%	49.7%
HIV Prevalence	3.70%	6.04%
Doctor to Population ratio	1:21000	< 1:10,000
Nurse to Population ratio	1:1446	1:3333
HF to Population ratio	1:4435	1:4693
HDI	0.6012	0.535
Literacy Level	69	72%
Poverty Headcount	47	46

Table 2: Service delivery per county versus national

	Laikipia	National
TB CNR	171	210
TB/HIV Co infection rate	35%	35.6%
No. of TB Control zones	3	279
DX/100,000	5	5
Rx/100,000	9	7
Number of Rx	43	3320
Number of Dx	25	1920
No of ART/CCC sites	23	3000
DR TB Rx sites	5	329

Table 3: Type of TB per year

Type of TB	2012	2013		2014
PTB+	319	297		323
Retreatments	87	77		84
PTB-	145	198		237
EPTB	144	75		147
SMND	74	72		62

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV Testing Rate	97%	95%	91%
TB/HIV co-infection rate	28%	26%	28%
CPT Uptake	97%	97%	95%
ART Uptake	81%	73%	76%

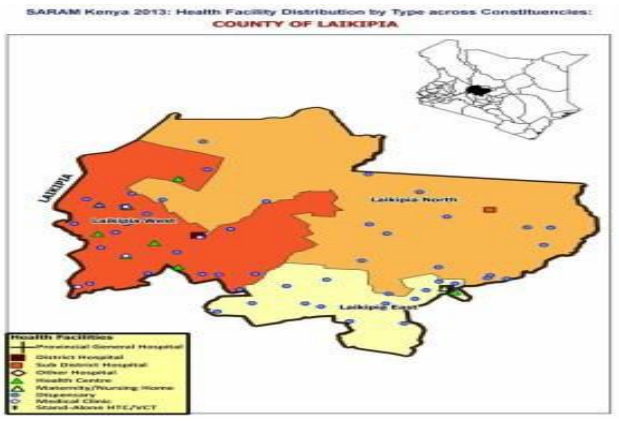


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	86%	0	7%	3%	4%
Retreatment	70%	0	15%	12%	3%
PTB-	81%	0	1%	14%	4%
EPTB	81%	0	7%	9%	3%
SMND	84%	0	4%	7%	5%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

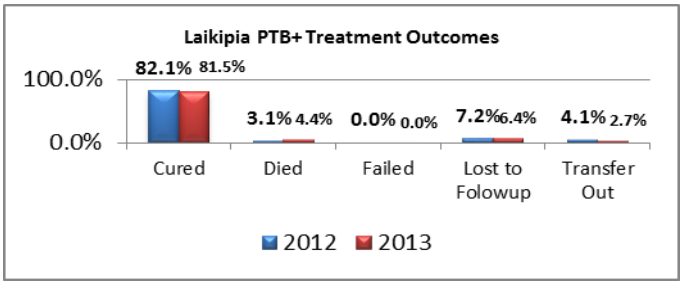


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	280	500
Food support	93	120

Table 7: DRTB patients reported per year

DR TB	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
R	**0**	1	**0**
PDR	**0**	**0**	**0**
MDR	**0**	**0**	**0**
Total	**0**	**1**	**0**

TB case finding:

Lamu reported a total of 232 cases with 4.3% being children. Among the cases 98.7% were drawn from the public sector and 1.3% from the private sector.

	Lamu	Kenya
Population	114,995	43,726,652
Urban Population	19.9%	29.9%
Population Density	18.	75
Proportion of Males	52%	49.7%
HIV Prevalence	2.3%	6.04%
Doctor to Population ratio	missing	< 1:10,000
Nurse to Population ratio	missing	1:3333
HF to Population ratio	1:2362	1:4693
HDI	0.5512	0.535
Literacy Level	67.5	72%
Poverty Headcount	32	46

Table 2: Service delivery per county versus national

	Lamu	National
TB CNR	201	210
TB/HIV Co infection rate	17%	35.6%
No. of TB Control zones	2	279
Dx/100,000	7	5
Rx/100,000	12	7
Number of Rx	14	3320
Number of Dx	9	1920
No of ART/CCC sites	14	3000
DR TB Rx sites	1	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	98	98	113
Retreatments	25	28	13
PTB-	51	66	64
EPTB	42	48	31
SMND	7	6	5

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
No tested for HIV	97	96	97
TB/HIV co-infection rate	23	18	17
CPT Uptake	100	100	95
ART Uptake	88	98	93

Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	83%	0	4%	3%	10%
Retreatment	100%	0	0	0	0
PTB-	90%	0	6%	2%	2%
EPTB	98%	0	0	2%	0
SMND	100%	0	0	0	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

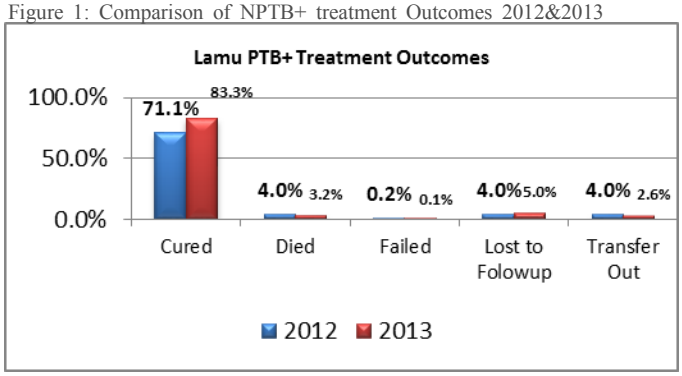


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	27	100
Food support	10	16

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	0	0
RR	0	0	0
PDR	0	0	0
MDR	0	0	1
Total	0	0	1

MACHAKOS

TB case finding:
Machakos reported a total of 2439 cases with 4.3% being children. Among the cases, most were drawn from the public sector and 10% from the private sector

	Machakos	Kenya
Population	1,244,167	43,726,652
Urban Population	52	29.9%
Population Density	200	75
Proportion of Males	49%	49.7%
HIV Prevalence	5.0	6.04%
Doctor to Population ratio	1:27000	< 1:10,000
Nurse to Population ratio	1:1688	1:3333
HF to Population ratio	1:3869	1:4693
HDI	0.5868	0.535
Literacy Level	80%	72%
Poverty Headcount	56	46

Table 2: Service delivery per county versus national

	Machakos	National
TB CNR	193	210
TB/HIV Co infection rate	29%	35.6%
No. of TB Control zones	7	279
DX/100,000	4	5
Rx/100,000	10	7
Number of Rx	135	3320
Number of Dx	59	1920
No of ART/CCC sites	46	3000
DR TB Rx sites	1	329

Table 3: Type of TB per year

Table 3: TB/HIV indicators per year[5] **Type of TB**	**2012**	**2013**	**2014**
PTB+	1261	1103	1161
Retreatments	14	28	99
PTB-	774	538	475
EPTB	465	413	502
SMND	110	68	92

Table 4: TB/HIV indicators per year

TB/HIV indicators	**2012**	**2013**	**2014**
No tested for HIV	98	98	98%
TB/HIV co-infection rate	31	30	29%
CPT Uptake	100	99	100
ART Uptake	98	96	95%

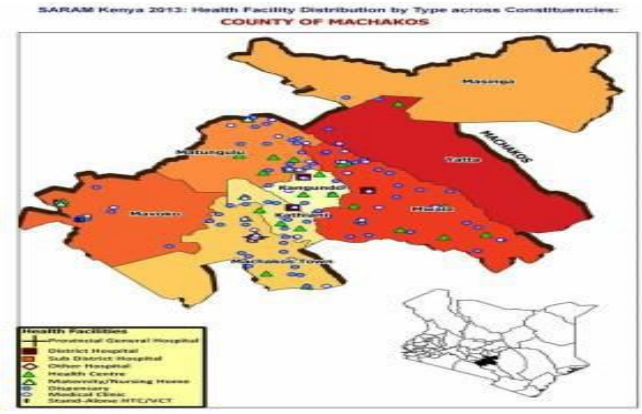


Table 5: Type of TB and their outcomes

Type of TB	**TSR**	**Failure**	**LTFU**	**Death**	**TO**
PTB+	87.7 %	0.3%	4%	4%	4%
Retreatment	85%	1.0%	3%	8%	3%
PTB-	82%	0	5%	10%	3%
EPTB	84%	0	3%	8%	5%
SMND	88%	0	6%	5%	1%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

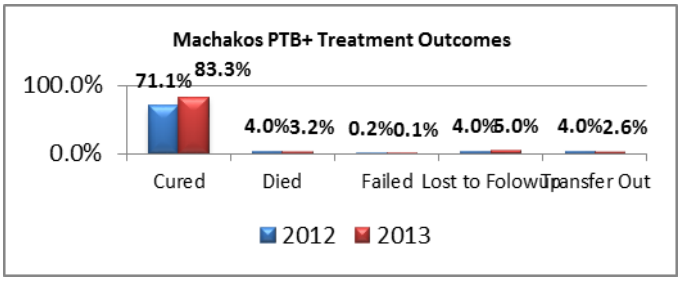


Table 6: Nutritional status and support given to patients

	HIV+	**HIV -**
BMI <18.5	351	806
Food support	181	299

Table 7: DRTB patients reported per year

	2012	**2013**	**2014**
Mono (exclude Rifampicin)	**0**	**1**	**3**
RR	**0**	**0**	0
PDR	**0**	**0**	2
MDR	1	**0**	8
Total	**1**	**1**	**13**

TB case finding:
Makueni reported a total of 1606 cases with 6.4% being children. Among the cases 90% were drawn from the public sector and 10% from the private sector

	Makueni	Kenya
Population	1,001,743	43,726,652
Urban Population	12%	29.9%
Population Density	125	75
Proportion of Males	49%	49.7%
HIV Prevalence	5.6	6.04%
Doctor to Population ratio	1:37000	< 1:10,000
Nurse to Population ratio	1:1970	1:3333
HF to Population ratio	1:4808	1:4693
HDI	0,5584	0.535
Literacy Level	77.6	72%
Poverty Headcount	64	46

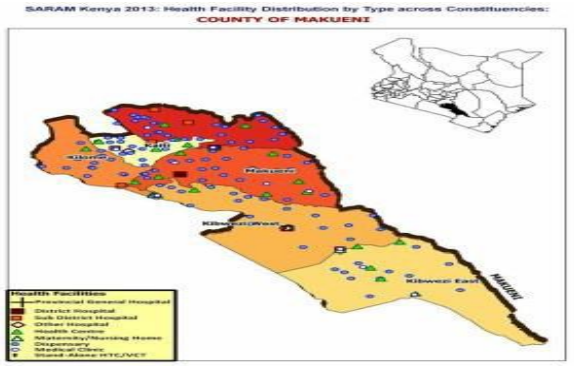


Table 2: Service delivery per county versus national

	Makueni	National
TB CNR	158	210
TB/HIV Co infection rate	28%	35.6%
No. of TB Control zones	6	279
DX/100,000	5	5
Rx/100,000	14	7
Number of Rx	147	3320
Number of Dx	51	1920
No of ART/CCC sites	72	3000
DR TB Rx sites	12	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	744	764	738
Retreatments	186	208	172
PTB-	608	644	429
EPTB	217	203	184
SMND	110	68	83

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
No tested for HIV	99%	97%	97%
TB/HIV co-infection rate	30	30	28%
CPT Uptake	100	100%	100
ART Uptake	99%	96%	94%

Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	90%	2%	4%	2%	2%
Retreatment	86%	2%	6%	3%	2%
PTB-	88%	1%	9%	2%	1%
EPTB	87%	2%	9%	2%	2%
SMND	91%	3%	4%	3%	3%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

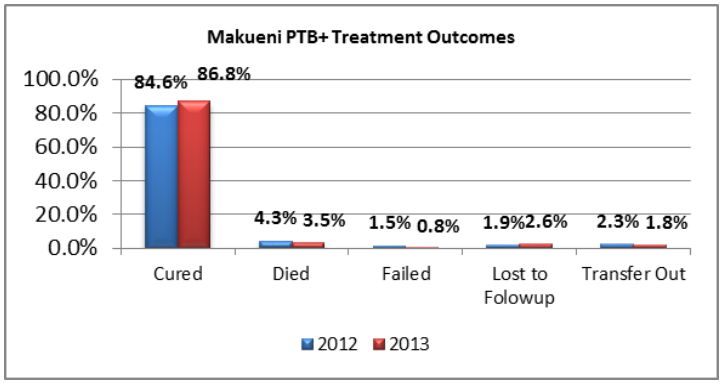


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	272	560
Food support	125	203

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	0
RR	1	2	0
PDR	**0**	**0**	0
MDR	5	4	0
Total	**6**	**6**	0

TB case finding:
Mandera reported a total of 627 cases with **10.4**% being children. Most cases were drawn from the public sector and a few from the private sector

	Mandera	Kenya
Population	1,161,688	43,726,652
Urban Population	18%	29.9%
Population Density	45	75
Proportion of Males	55%	49.7%
HIV Prevalence	1.7%	6.04%
Doctor to Population ratio	1:256000	< 1:10,000
Nurse to Population ratio	1:14051	1:3333
HF to Population ratio	1:14052	1:4693
HDI	0.3592	0.535
Literacy Level	13.3%	72%
Poverty Headcount	87	46

Table 2: Service delivery per county versus national

	Mandera	National
TB CNR	54	210
TB/HIV Co infection rate	2%	35.6%
No. of TB Control zones	4	279
DX/100,000	1	5
Rx/100,000	2	7
Number of Rx	29	3320
Number of Dx	16	1920
No of ART/CCC sites	7	3000
DR TB Rx sites	0	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	322	239	213
Retreatments	50	52	50
PTB-	313	191	217
EPTB	91	85	113
SMND	7	25	34

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
No tested for HIV	99%	98%	99%
TB/HIV co-infection rate	2%	2%	2%
CPT Uptake	100%	100%	100%
ART Uptake	88%	82%	88%

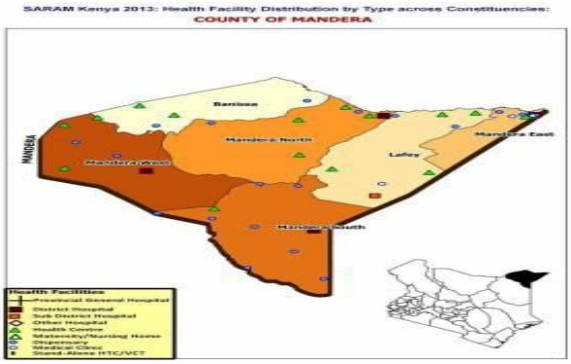


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	90%	0	1%	5%	4%
Retreatment	90%	0	5%	0	5%
PTB-	99%	0	0	1%	0
EPTB	98%	0	0	1%	1%
SMND	100%	0	0	0	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

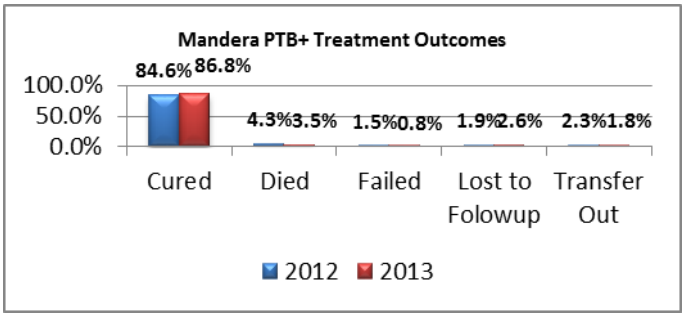


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	11	432
Food support	7	149

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	**0**	**0**	**0**
PDR	**0**	**0**	**0**
MDR	**0**	**0**	**0**
Total	**0**	**0**	**0**

TB case finding:
Marsabit reported a total of 672 cases with 11.3% being children. Among the cases 73.7% were drawn from the public sector and 26.3% from the private sector

	Marsabit	Kenya
Population	329,751	43,726,652
Urban Population	22%	29.9%
Population Density	4.6	75
Proportion of Males	51.9%	49.7%
HIV Prevalence	1.2%	6.04%
Doctor to Population ratio	1:321,000	<1:10000
Nurse to Population ratio	1:1967	1:3333
HF to Population ratio	1:3065	1:4693
HDI	0.4032	0.535
Literacy Level	27.2%	72%
Poverty Headcount	80%	46%

Table 2: Service delivery per county versus national

	Marsabit	National
TB CNR	203	210
TB/HIV Co infection rate	9%	35.6%
No. of TB Control zones	4	290
DX/100,000	4.9	4
Rx/100,000	14.9	7
Number of RX	49	3320
Number of Dx	16	1920
No of CCC/ART sites	9	3000
DR TB Rx sites	0	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	270	226	298
R	75	35	35
PTB-	265	203	230
EPTB	103	85	94
SMND			15

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	83.6%	85%	97.8%
TB/HIV co-infection rate	14.6%	16%	9%
CPT uptake	100%	99%	100%
ART uptake	85.7%	89%	95.2%

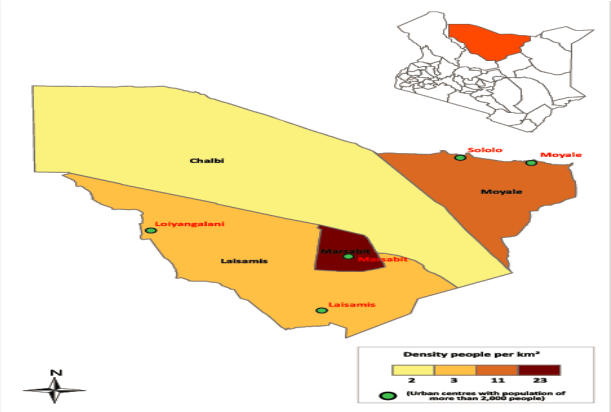


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	93.3%	0.4%	1.8%	2.7%	1.8%
Retreatment	93.8%	0	0	0	6.3%
PTB-	84.4%	-	6.3%	6.8%	2.4%
EPTB	92.9%	-	2.4%	3.5%	1.2%
SMND	92%	-	4%	0	4%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

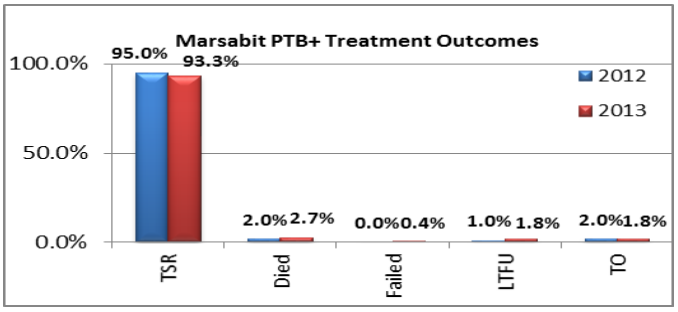


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	45	375
Food support	19	104

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	0	0
PDR	0	0	0
MDR	0	1	0
Total	**0**	**1**	**0**

TB case finding:
Meru reported a total of 3613 cases with 8.1% being children. Among the cases 80% were drawn from the public sector and 17.9% from the private sector

	Meru	Kenya
Population	1,536,036	43,726,652
Urban Population	12%	29.9%
Population Density	221.5	75
Proportion of Males	49.4%	49.7%
HIV Prevalence	3.0%	6.04%
Doctor to Population ratio	1:38,000	<1:10000
Nurse to Population ratio	1:1609	1:3333
HF to Population ratio	1:3897	1:4693
HDI	0.56	0.535
Literacy Level	57.3%	72%
Poverty Headcount	28%	46%

Table 2: Service delivery per county versus national

	Meru	National
TB CNR	227	210
TB/HIV Co infection rate	19%	35.6%
No. of TB Control zones	8	290
DX/100,000	1	4
Rx/100,000	7	7
Number of RX	109	3320
Number of Dx	77	1920
No of ART/CCCsites	46	3000
DR TB Rx sites	7	329

Table 3. Type of TB per year

Type of TB	2012	2013	2014
PTB+	1715	1811	1917
R	375	291	335
PTB-	581	539	550
EPTB	411	459	501
SMND			310

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	96%	97%	96%
TB/HIV co-infection rate	23%	16%	19%
CPT Uptake	100%	99%	97.8%
ART Uptake	89%	84%	95.2%

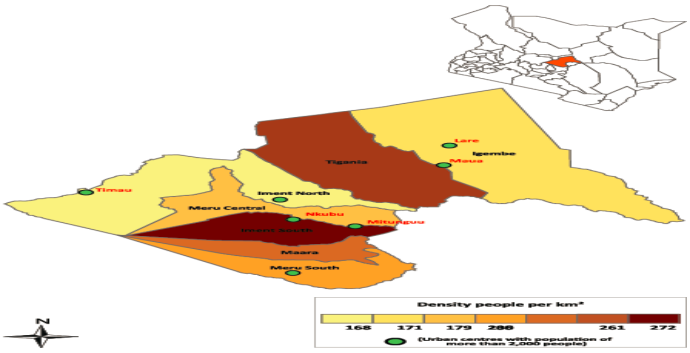


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	86.7%	0.1%	8.2%	2.8%	2.2%
Retreatment	79.4%	1%	7.2%	11.3%	1%
PTB-	83.2%	-	6.7%	8.3%	1.8%
EPTB	88.2%	-	4.4%	5%	2.4%
SMND	78.8%	-	7.7%	9.6%	3.8%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

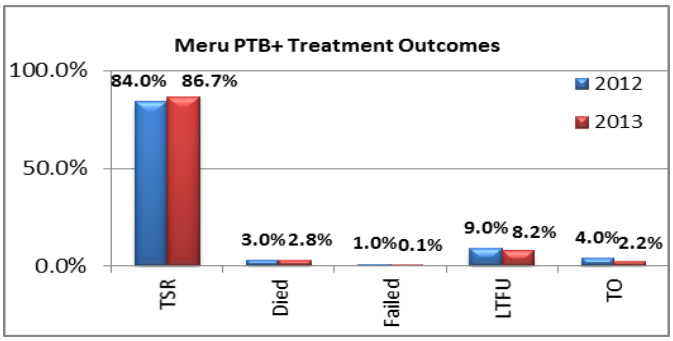


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	356	1450
Food support	95	188

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	0	0
RR	0	0	1
PDR	0	0	1
MDR	4	2	3
Total	4	2	5

TB case finding:
Migori reported a total of 2364 cases with 7.9% being children. Among the cases 78.9% were drawn from the public sector and 20.4% from the private sector

	Migori	Kenya
Population	1,038,712	43,726,652
Urban Population	34%	29.9%
Population Density	400.1	75
Proportion of Males	48.4%	49.7%
HIV Prevalence	14.7%	6.04%
Doctor to Population ratio	1:24,000	<1:10000
Nurse to Population ratio	1:1478	1:3333
HF to Population ratio	1:5620	1:4693
HDI	0.48	0.535
Literacy Level	70%	72%
Poverty Headcount	46%	46%

Table 2: Service delivery per county versus national

	Migori	National
TB CNR	225	210
TB/HIV Co infection rate	56%	35.6%
No. of TB Control zones	8	290
DX/100,000	6	4
Rx/100,000	9	7
Number of RX	89	3320
Number of Dx	57	1920
No of ART/CCC sites	86	3000
DR TB Rx sites	11	329

Table 3: Type of TB per year

Type of TB	2012	2013		2014	
PTB+	733	681		722	
R	258	175		135	
PTB-	1343	1120		1060	
EPTB	469	431		347	
SMND				100	

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	99%	99%	98%
TB/HIV co-infection rate	62%	63%	56%
CPT Uptake	100%	100%	99.9%
ART Uptake	96%	91%	90.3%

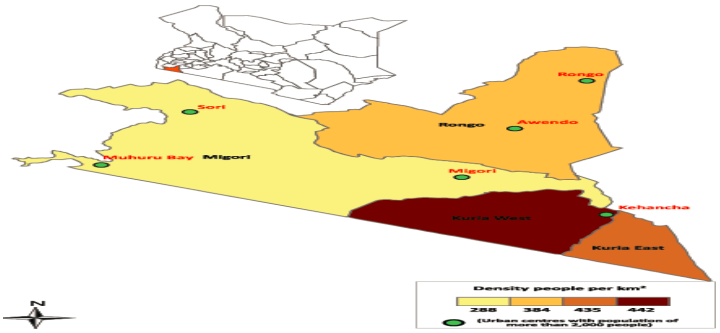


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	86.7%	0.1%	8.2%	2.8%	2.2%
Retreatment	79.4%	1%	7.2	11.3%	1.0%
PTB-	83.2%	-	6.7%	8.3%	1.8%
EPTB	88.2%	-	4.4%	5.0%	2.4%
SMND	78.8%	-	7.7%	9.6%	3.8%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

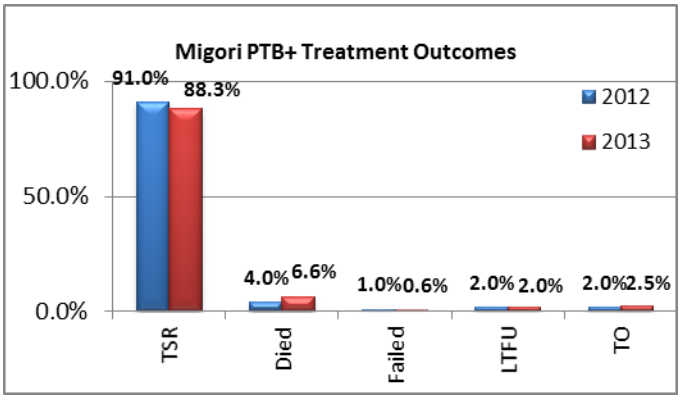


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	565	343
Food support	420	210

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**1**	**0**
RR	0	0	0
PDR	0	1	0
MDR	7	5	3
Total	**7**	**7**	**3**

MOMBASA

TB case finding:
Mombasa reported a total of 4554 cases with 7.5% being children. Among the cases 66.4% were drawn from the public sector and 29% from the private sector

	Mombasa	Kenya
Population	1,063,854	43,726,652
Urban Population	100%	29.9%
Population Density	4860	75
Proportion of Males	51.8%	49.7%
HIV Prevalence	7.4%	6.04%
Doctor to Population ratio	1:7,000	<1:10000
Nurse to Population ratio	1:1381	1:3333
HF to Population ratio	1:2631	1:4693
HDI	0.57	0.535
Literacy Level	79.2%	72%
Poverty Headcount	38%	46%

Table 2: Service delivery per county versus national

	Mombasa	National
TB CNR	425	210
TB/HIV Co infection rate	30%	35.6%
No. of TB Control zones	8	290
DX/100,000	5	4
Rx/100,000	9	7
Number of RX	109	3320
Number of Dx	48	1920
No of ART/CCC sites	52	3000
DR TB Rx sites	15	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	2206	1977	1984
R	795	718	692
PTB-	1138	1057	898
EPTB	795	746	745
SMND			235

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	96%	94%	95%
TB/HIV co-infection rate	31%	32%	30%
CPT Uptake	99%	99%	99.2%
ART Uptake	94%	92%	92.7%

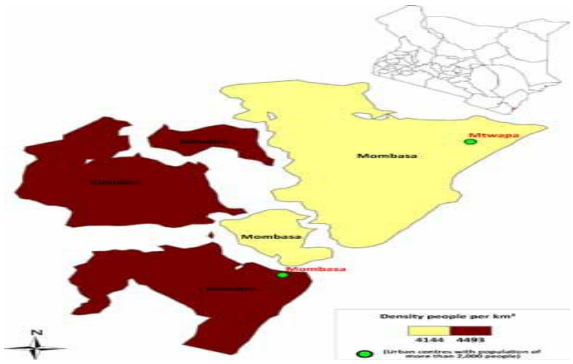


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	86.7%	0.1%	8.2%	2.8%	2.2%
Retreatment	79.4%	1%	7.2%	11.3%	1%
PTB-	83.2%	-	6.7%	8.3%	1.8%
EPTB	88.2%	-	4.4%	5%	2.4%
SMND	78.8%	-	7.7%	9.6%	3.8%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

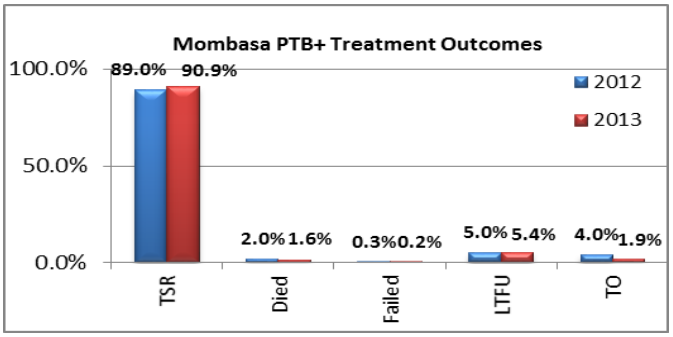


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	581	1171
Food support	98	163

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**2**
RR	0	0	1
PDR	1	0	1
MDR	16	15	11
Total	**17**	**15**	**15**

TB case finding:
Muranga reported a total of 2047 cases with 6.7% being children. Among the cases 88.2% were drawn from the public sector and 10.1% from the private sector

	Murang'a	Kenya
Population	1,067,490	43,726,652
Urban Population	16%	29.9%
Population Density	417.2	75
Proportion of Males	48.6%	49.7%
HIV Prevalence	5.2%	6.04%
Doctor to Population ratio	1:17,000	<1:10000
Nurse to Population ratio	1:1609	1:3333
HF to Population ratio	1:3801	1:4693
HDI	0.59	0.535
Literacy Level	70%	72%
Poverty Headcount	30%	46%

Table 2: Service delivery per county versus national

	Muranga	National
TB CNR	187	210
TB/HIV Co infection rate	27%	35.6%
No. of TB Control zones	7	290
DX/100,000	5	4
Rx/100,000	6	7
Number of RX	35	3320
Number of Dx	56	1920
No of ART/CCC sites	26	3000
DR TB Rx sites	15	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	896	861	911
R	156	144	204
PTB-	721	715	605
EPTB	258	262	255
SMND			72

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	99%	98%	98%
TB/HIV co-infection rate	27%	29%	27%
CPT Uptake	100%	100%	99.8%
ART Uptake	93%	92%	93.8%

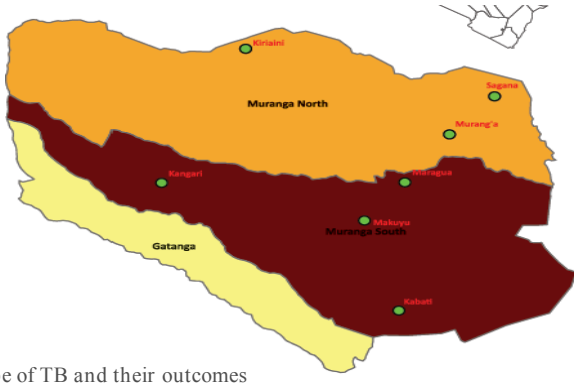


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	86.7%	0.1%	8.2%	2.8%	2.2%
Retreatment	79.4%	1%	7.2%	11.3	1%
PTB-	83.2%	-	6.7%	8.3%	1.8%
EPTB	88.2%	-	4.4%	5%	2.4%
SMND	78.8%	-	7.7%	9.6%	3.8%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

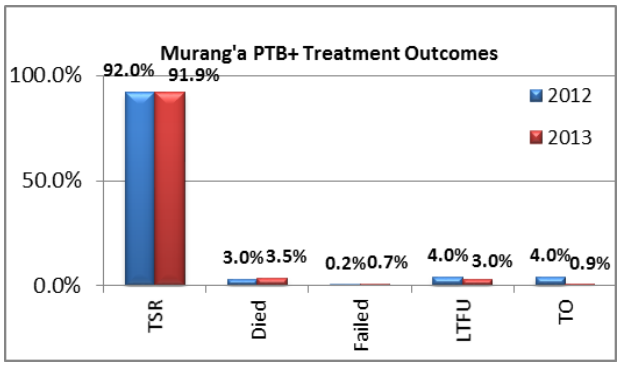


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	313	720
Food support	190	367

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	0	3	3
RR	1	1	0
PDR	0	0	0
MDR	1	4	2
Total	2	8	5

NAIROBI

TB case finding:
Nairobi reported a total of 13,917 cases with 7.2 % being children. Among the cases 64.7% were drawn from the public sector and 33.1% from the private sector

	Nairobi	Kenya
Population	3,554,261	43,726,652
Urban Population	100%	29.9%
Population Density	5113	75
Proportion of Males	51.1%	49.7%
HIV Prevalence	6.8%	6.04%
Doctor to Population ratio	1:23,000	<1:10000
Nurse to Population ratio	1:2797	1:3333
HF to Population ratio	1:5812	1:4693
HDI	0.65	0.535
Literacy Level	88%	72%
Poverty Headcount	21%	46%

Table 2: Service delivery per county versus national

	Nairobi	National
TB CNR	387	210
TB/HIV Co infection rate	39.2%	35.6%
No. of TB Control zones	22	290
DX/100,000	4	4
Rx/100,000	6.5	7
Number of RX	227	3320
Number of Dx	153	1920
No of ART/CCC sites	149	3000
DR TB Rx sites	38	329

Table 3: Type of TB per year

Type of TB	2012	2013		2014
PTB+	5898	5560		5213
R	2094	1835		1792
PTB-	3333	2671		2486
EPTB	3472	3154		3139
SMND				1287

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	91%	90%	88%
TB/HIV co-infection rate	41%	41%	39.2%
CPT Uptake	99%	98%	98.3%
ART Uptake	79%	72%	73.8%

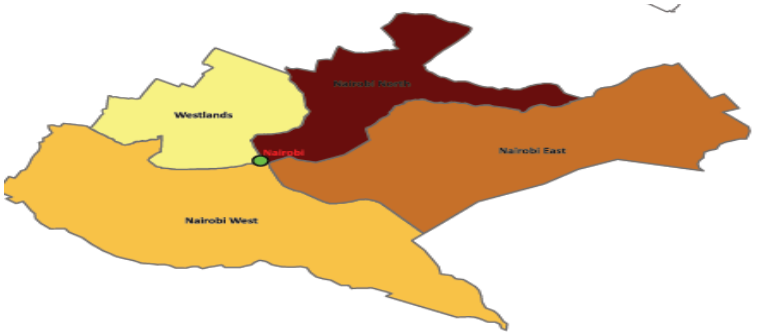


Table 5: Type of TB and their outcomes

Type of TB	TSR	failure	LTFU	Death	TO
PTB+	84.1%	0.6%	7.8%	2.3%	5.1%
R+	77.4%	1.0%	9.3%	4.4%	7.8%
PTB-	84.5%	-	5.7%	5.0%	4.8%
EPTB	85.2%	-	5.9%	3.9%	5.0%
SMND	81.1%	-	7.8%	3.6%	7.5%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

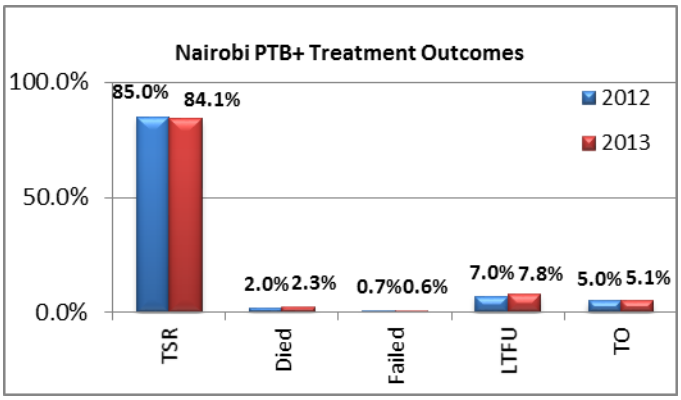


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	1687	2490
Food support	622	628

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	4	14
PDR	4	4	1
MDR	42	67	49
Total	**46**	**75**	**64**

TB case finding:
Nakuru reported a total of 4379 cases with 9.4 %being children. Among the cases 83% were drawn from the public sector and 15% from the private sector

	Nakuru	Kenya
Population	1,815,795	43,726,652
Urban Population	46%	29.9%
Population Density	242.3	75
Proportion of Males	50.2%	49.7%
HIV Prevalence	5.3%	6.04%
Doctor to Population ratio	1:32,000	<1:10000
Nurse to Population ratio	1:2146	1:3333
HF to Population ratio	1:4675	1:4693
HDI	0.56	0.535
Literacy Level	76%	72%
Poverty Headcount	41%	46%

Table 2: Service delivery per county versus national

	Nakuru	National
TB CNR	233	210
TB/HIV Co infection rate	39%	35.6%
No. of TB Control zones	10	290
DX/100,000	4.5	4
Rx/100,000	5.2	7
Number of RX	62	3320
Number of Dx	91	1920
No of ART/CCC sites	70	3000
DR TB Rx sites	6	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	1361	1419	1488
R	314	267	387
PTB-	1232	1365	1381
EPTB	808	683	726
SMND			396

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	92%	91%	92%
TB/HIV co-infection rate	40%	41%	39%
CPT Uptake	100%	100%	99.9%
ART Uptake	83%	77%	81.3%

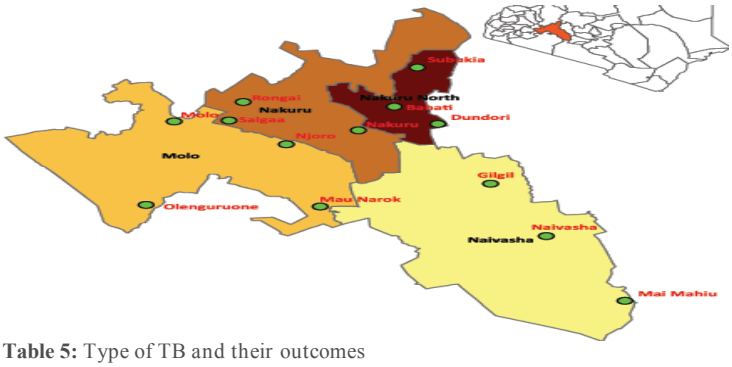


Table 5: Type of TB and their outcomes

Type of TB	TSR	failure	LTFU	Death	TO
PTB+	89.4%	0.1%	5.3%	3.4%	1.8%
R+	80.5%	0.0%	6.9%	9.2%	3.4%
PTB-	82.6%	-	6.3%	6.2%	4.9%
EPTB	81.5%	-	7.6%	7.2%	3.7%
SMND	84.2%	-	6.2%	5.6%	4.0%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

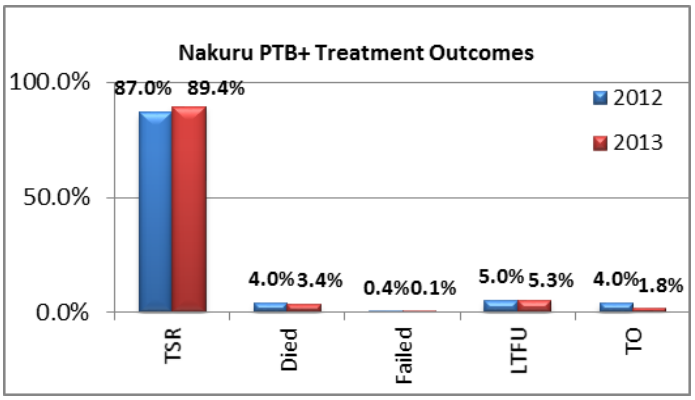


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	706	957
Food support	427	480

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	1	3
PDR	1	0	0
MDR	1	4	1
Total	**2**	**5**	**4**

TB case finding:
Nandi reported a total of 785 cases with 9.7% being children. Among the cases 95.7% were drawn from the private sector and 1.7% from the public sector

	Nandi	Kenya
Population	852,747	43,726,652
Urban Population	14%	29.9%
Population Density	295.7	75
Proportion of Males	50%	49.7%
HIV Prevalence	3.7%	6.04%
Doctor to Population ratio	1:94,000	<1:10000
Nurse to Population ratio	1:3137	1:3333
HF to Population ratio	1:4430	1:4693
HDI	0.58	0.535
Literacy Level	77%	72%
Poverty Headcount	47%	46%

Table 2: Service delivery per county versus national

	Nandi	National
TB CNR	88	210
TB/HIV Co infection rate	33%	35.6%
No. of TB Control zones	5	290
DX/100,000	4.5	4
Rx/100,000	4.7	7
Number of RX	38	3320
Number of Dx	40	1920
No of ART/CCC sites	22	3000
DR TB Rx sites	2	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	375	383	339
R	54	64	63
PTB-	144	149	156
EPTB	111	144	124
SMND			103

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	92%	93%	95%
TB/HIV co-infection rate	37%	38%	33%
CPT Uptake	97.7%	98%	97.6%
ART Uptake	81.5%	79%	85.7%

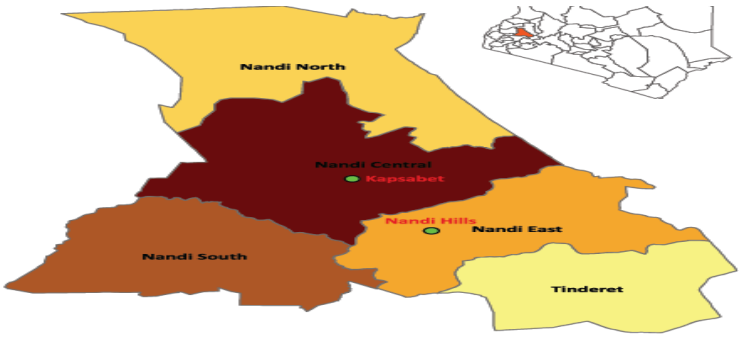


Table 5: Type of TB and their outcomes

Type of TB	TSR	failure	LTFU	Death	TO
PTB+	81.9%	0	8.7%	6.0%	3.4%
R+	81.3%	0	6.3%	12.5%	0
PTB-	74.3%	-	7.4%	10.8%	7.4%
EPTB	76.6%	-	9.0%	9.7%	4.8%
SMND	62.2%	-	17.1%	14.6%	6.1%

Figure 1: Comparison of PTB+ treatment Outcomes 2012&2013

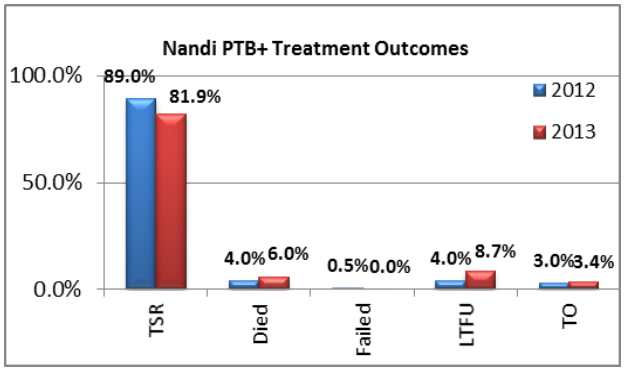


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	138	248
Food support	21	25

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	0	0
PDR	0	0	0
MDR	0	0	2
Total	**0**	**0**	**2**

TB case finding:
Narok reported a total of 1439 cases with 13.6% being children. Among the cases 78.7% were drawn from the public sector and 20.9% from the private sector

	Narok	Kenya
Population	963,683	43,726,652
Urban Population	7%	29.9%
Population Density	54	75
Proportion of Males	50.4%	49.7%
HIV Prevalence	5.0%	6.04%
Doctor to Population ratio	1:41,000	<1:10000
Nurse to Population ratio	1:3128	1:3333
HF to Population ratio	1:5711	1:4693
HDI	0.51	0.535
Literacy Level	49.5%	72%
Poverty Headcount	34%	46%

Table 2: Service delivery per county versus national

	Narok	National
TB CNR	148	210
TB/HIV Co infection rate	31%	35.6%
No. of TB Control zones	6	290
DX/100,000	4	4
Rx/100,000	5.5	7
Number of RX	52	3320
Number of Dx	39	1920
No of ART/CCC sites	22	3000
DR TB Rx sites	5	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	603	539	545
R	73	60	102
PTB-	447	356	488
EPTB	160	176	185
SMND			119

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	93%	92%	94%
TB/HIV co-infection rate	31%	30%	31%
CPT Uptake	98.8%	99.1%	98.6%
ART Uptake	68.1%	64.2%	76.3%

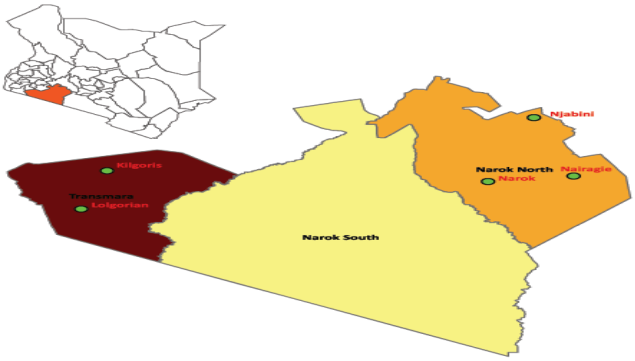


Table 5: Type of TB and their outcomes

Type of TB	TSR	failure	LTFU	Death	TO
PTB+	90.9%	0.2%	5.4%	2.8%	0.7%
R+	88.9%	0	0	11.1%	0
PTB-	88.6%	-	4.7%	4.5%	2.2%
EPTB	90.6%	-	2.8%	5.6%	1.1%
SMND	87.5%	-	2.8%	9.7%	0

Figure 1: Comparison of PTB+ treatment Outcomes 2012&2013

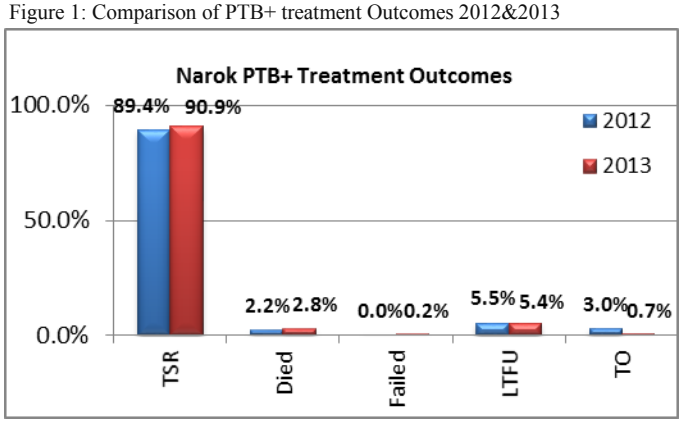


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	215	477
Food support	109	174

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**1**	**0**	**2**
RR	0	0	1
PDR	0	0	0
MDR	0	0	2
Total	**1**	**0**	**5**

NYAMIRA

TB case finding:

Nyamira reported a total of 807 cases with 7.2% being children. Among the cases 92.4% were drawn from the public sector and 7.6% from the private sector

	Nyamira	Kenya
Population	677,532	43,726,652
Urban Population	14%	29.9%
Population Density	754	75
Proportion of Males	48%	49.7%
HIV Prevalence	6.4%	6.04%
Doctor to Population ratio	1:100,000	<1:10000
Nurse to Population ratio	1:2498	1:3333
HF to Population ratio	1:5809	1:4693
HDI	0.6	0.535
Literacy Level	82%	72%
Poverty Headcount	50%	46%

Table 2: Service delivery per county versus national

	Nyamira	National
TB CNR	116	210
TB/HIV Co infection rate	37%	35.6%
No. of TB Control zones	5	290
DX/100,000	6	4
Rx/100,000	10	7
Number of RX	54	3320
Number of Dx	42	1920
No of ART/CCC sites	66	3000
DR TB Rx sites	6	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	364	375	330
R	81	55	40
PTB-	314	374	329
EPTB	63	73	74
SMND			34

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	97%	97%	98%
TB/HIV co-infection rate	38%	43%	37%
CPT Uptake	100%	100%	99.7%
ART Uptake	91.2%	85.8%	93.6%

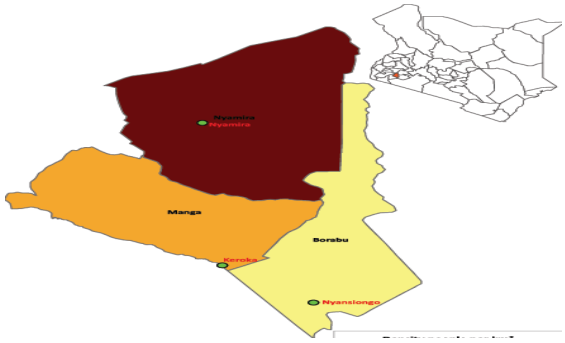


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	91.5%	0.3%	1.3%	5.6%	1.3%
Retreatment	85.7%	0	0	14.3%	0
PTB-	76.5%	-	4.1%	14.7%	4.6%
EPTB	83.8%	-	4.1%	9.5%	2.7%
SMND	70.0%	-	3.3%	20.0%	6.7%

Figure 1: Comparison of PTB+ treatment Outcomes 2012&2013

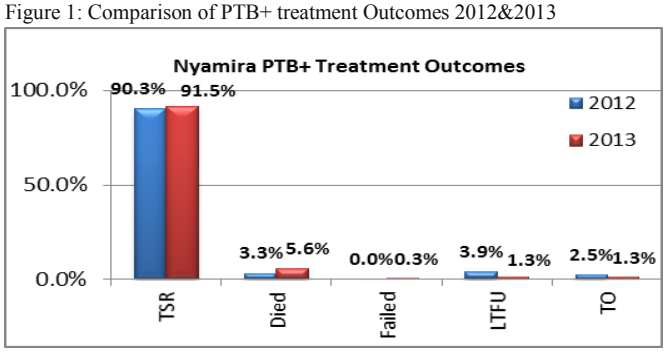


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	114	171
Food support	67	61

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**1**	**0**
RR	0	0	0
PDR	0	0	0
MDR	4	2	3
Total	**4**	**3**	**3**

TB case finding:
Nyandarua reported a total of 808 cases with7.1% being children. Among the cases 82.4% were drawn from the public sector and 17.6% from the private sector

	Nyandarua	Kenya
Population	675,285	43,726,652
Urban Population	19%	29.9%
Population Density	209	75
Proportion of Males	49%	49.7%
HIV Prevalence	3.8%	6.04%
Doctor to Population ratio	1:22,000	<1:10000
Nurse to Population ratio	1:1117	1:3333
HF to Population ratio	1:4887	1:4693
HDI	0.6	0.535
Literacy Level	77%	72%
Poverty Headcount	49%	46%

Table 2: Service delivery per county versus national

	Nyandarua	National
TB CNR	118	210
TB/HIV Co infection rate	35%	35.6%
No. of TB Control zones	5	290
DX/100,000	10.5	4
Rx/100,000	11	7
Number of RX	38	3320
Number of Dx	35	1920
No of ART/CCC sites	21	3000
DR TB Rx sites	1	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	261	267	289
R	53	72	89
PTB-	217	309	285
EPTB	120	120	111
SMND			34

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	99.7%	97%	99%
TB/HIV co-infection rate	39%	37%	35%
CPT Uptake	100%	100%	99.7%
ART Uptake	93%	83%	92.7%

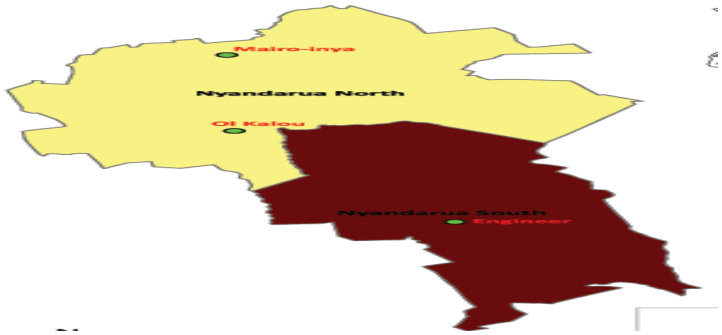


Table 5: Type of TB and their outcomes

Type of TB	TSR	failure	LTFU	Death	TO
PTB+	89.4%	0.1%	5.3%	3.4%	1.8%
R+	80.5%	0	6.9%	9.2%	3.4%
PTB-	82.6%	-	6.3%	6.2%	4.9%
EPTB	81.5%	-	7.6%	7.2%	3.7%
SMND	84.2%	-	6.2%	5.6%	4.0%

Figure 1: Comparison of PTB+ treatment Outcomes 2012&2013

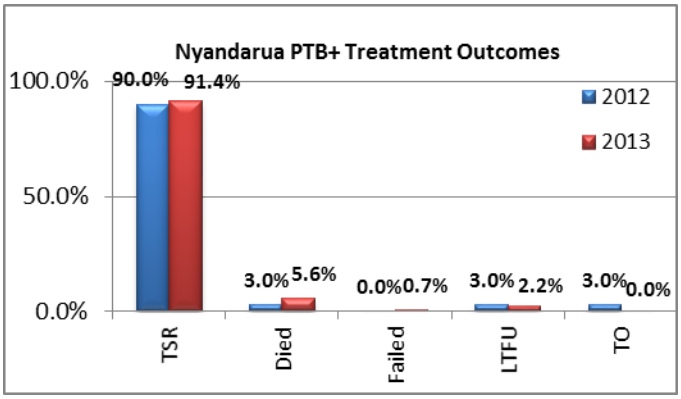


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	128	204
Food support	29	28

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono (exclude Rifampicin)	**0**	**0**	**0**
RR	0	0	0
PDR	0	0	0
MDR	0	1	0
Total	**0**	**1**	**0**

TB case finding:
Nyeri reported a total of 1354 cases with 5.8% being children. Among the cases78% were drawn from the public sector and 22% from the private sector.

	Nyeri	Kenya
Population	746, 694	43,726,652
Urban Population	24%	29.9%
Population Density	224	75
Proportion of Males	49%	49.7%
HIV Prevalence	4.40%	6.04%
Doctor to Population ratio	1:5000	<1:10,000
Nurse to Population ratio	1:654	1:3333
Health Facility to Population ratio	1.1787	1:4693
HDI	0.63	0.535
Literacy Level	86.5	72%
Poverty Headcount	31	46

Table 2: Service delivery per county versus national

	Nyeri	National
TB CNR	176	210
TB/HIV Co-infection rate	32	35.6%
Number of TB Control zones	5	279
Diagnostic /100,000	9	4
Treatment/100,000	9	7
Number of treatment	68	3320
Number of diagnostic	55	1920
No of ART/CCC sites	33	3000
DRTB treatment sites	9	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	601	529	498
Retreatment	121	118	146
PTB-	176	136	413
EPTB	608	512	218
SMND	78	66	79

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	98.1%	97%	97%
TB/HIV co-infection rate	34%	34%	32%
CPT Uptake	100%	100%	100%
ART Uptake	94%	90%	91%

Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	89%	2%	3%	4%	2%
Retreatment pos	75%	3.125%	9.375%	3.125%	6.25%
PTB-	89%	0	2%	6%	3%
EPTB	82%	0	3%	12%	3%
SMND	90%	0	2%	8%	2%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

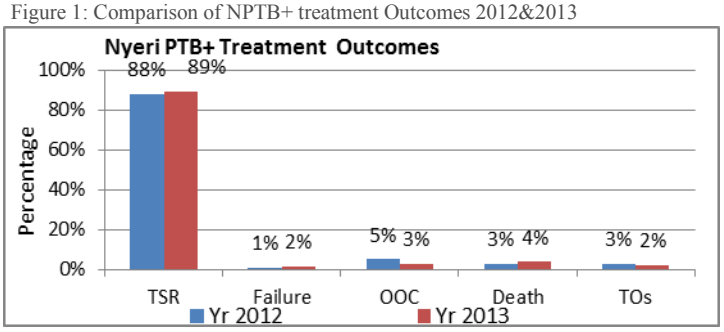


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	203	378
Food support	116	195

Table 7: DRTB patients reported per year

	2012	2013	2014
Monoresistant	0	1	4
RR	0	0	0
PDR	0	1	2
MDR	0	2	0
Total	0	4	6

TB case finding:
Samburu reported a total of 536 cases with 7% being children. Among the cases 81% were drawn from the public sector and 19% from the private sector.

	Samburu	Kenya
Population	253,624	43,726,652
Urban Population	17%	29.9%
Population Density	12	75
Proportion of Males	50%	49.7%
HIV Prevalence	5.10%	6.04%
Doctor to Population ratio	1:25000	<1:10,000
Nurse to Population ratio	1:1037	1:3333
Health Facility to Population ratio	1:3246	1:4693
HDI	0.41	0.535
Literacy Level	27.0	72%
Poverty Headcount	78	46

Table 2: Service delivery per county versus national

	Samburu	National
TB CNR	203	210
TB/HIV Co-infection rate	27%	35.6%
Number of TB Control zones	4	279
Diagnostic /100,000	4.4	4
Treatment/100,000	8.8	7
Number of treatment	30	3,320
Number of diagnostic	10	1,920
No of ART/CCC sites	22	3,000
DRTB treatment sites	1	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	163	180	229
Retreatment	20	39	41
PTB-	126	144	175
EPTB	33	48	52
SMND	10	16	25

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	97%	91%	95%
TB/HIV co-infection rate	24%	27%	27%
CPT Uptake	99%	93%	98.6%
ART Uptake	60%	67%	85%

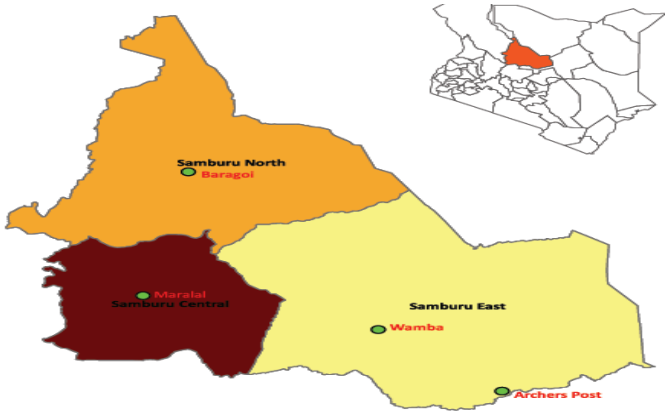


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	86%	0%	7%%	7%	0%
Retreatment pos	85%	1%	4	7%	1%
PTB-	79%	0%	6%	15%	0%
EPTB	92%	0%	4%	4%	0%
SMND	71%	0%	16%	13%	0%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

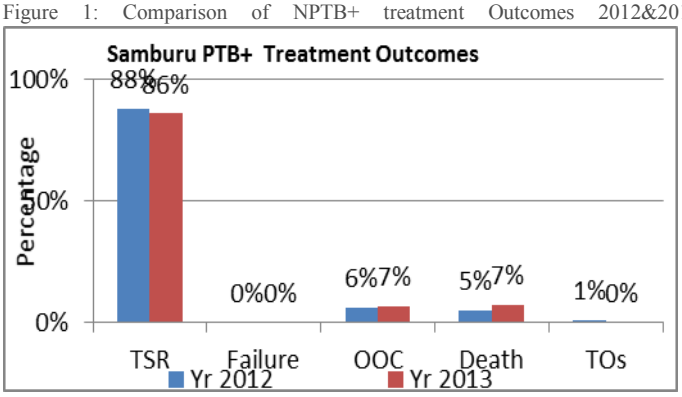


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	112	303
Food support	76	134

Table 7: DRTB patients reported per year

	2012	2013	2014
Monoresistant	**0**	**0**	**0**
RR	**0**	**0**	**0**
PDR	**0**	**0**	**0**
MDR	**0**	**0**	**2**
Total	**0**	**0**	**2**

TB case finding:

Siaya reported a total of 2254 cases with 5% being children. Among the cases 86% were drawn from the public sector and 14% from the private sector

	Siaya	Kenya
Population	953,925	43,726,652
Urban Population	11%	29.9%
Population Density	367	75
Proportion of Males	48%	49.7%
HIV Prevalence	17.80%	6.04%
Doctor to Population ratio	1:44000	<1:10,000
Nurse to Population ratio	1:1815	1:3333
Health Facility to Population ratio	1:5168	1:4693
HDI	0.46	0.535
Literacy Level	69.9	72%
Poverty Headcount	36	46

Table 2: Service delivery per county versus national

	Siaya	National
TB CNR	233	210
TB/HIV Co-infection rate	69%	35.6%
Number of TB Control zones	6	279
Diagnostic /100,000	6.5	4
Treatment/100,000	13.8	7
Number of treatment	141	3320
Number of diagnostic	78	1920
No of ART sites	150	3000
DRTB treatment sites	19	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	921	721	747
Retreatment	395	232	239
PTB-	850	683	714
EPTB	438	378	405
SMND	90	80	47

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	98%	99%	98%
TB/HIV co-infection rate	72%	68%	69%
CPT Uptake	99%	100%	99%
ART Uptake	96%	96%	95%

Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	86%	1%	4%	7%	2%
Retreatment	83%	3%	3%	11%	0
PTB-	80%	0	5%	11%	4%
EPTB	77%	0	6%	14%	3%
SMND	80%	0	4%	13%	3%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

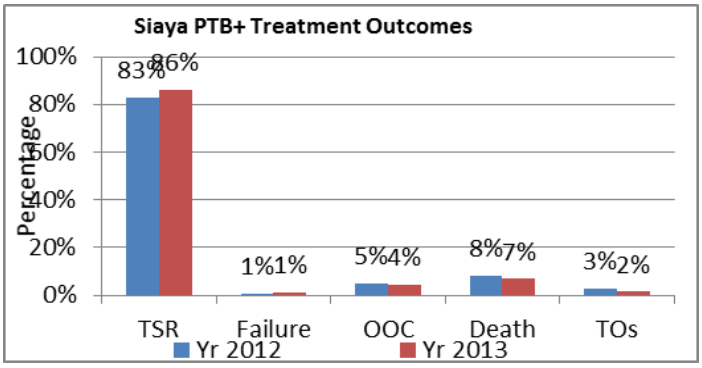


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	854	306
Food support	532	155

Table 7: DRTB patients reported per year

	2012	2013	2014
Monoresistant	**0**	**0**	**1**
RR	**0**	**0**	**0**
PDR	**0**	**0**	**0**
MDR	**8**	**10**	**10**
Total	**8**	**10**	**11**

TB case finding:
Taita taveta reported a total of 581 cases being with 5% being children. Among the cases 88% were drawn from the public sector and 12% from the private sector

	Taita Taveta	Kenya	
Population	322,379	43,726,652	
Urban Population	23%	29.9%	
Population Density	15	75	
Proportion of Males	51%	49.7%	
HIV Prevalence	46.40%	6.04%	
Doctor to Population ratio	1:71000	<1:10,000	
Nurse to Population ratio	1:1117	1:3333	
Health Facility to Population ratio	1:2612	1:4693	
HDI	0.55	0.535	
Literacy Level	66.2	72%	
Poverty Headcount	55	46	

Table 2: Service delivery per county versus national

	Taita Taveta	National
TB CNR	178	210
TB/HIV Co-infection rate	39%	35.6%
Number of TB Control zones	3	279
Diagnostic /100,000	17.2	4
Treatment/100,000	21.5	7
Number of treatment	36	3320
Number of diagnostic	17	1920
No of ART/CCC sites	20	3000
DRTB treatment sites	5	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	250	234	238
Retreatment	64	52	75
PTB-	176	224	137
EPTB	80	104	93
SMND	40	60	20

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	91%	88%	92%
TB/HIV co-infection rate	41%	41%	39%
CPT Uptake	98%	96%	99%
ART Uptake	65%	64%	86%

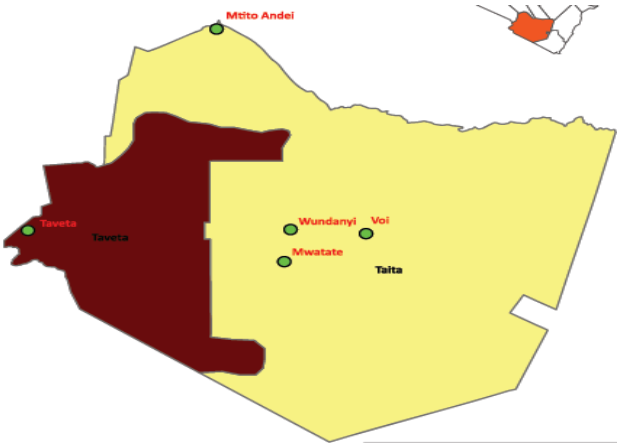


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	88%	2%	3%	4%	3%
Retreatment pos	79%	5%	11%	5%	0
PTB-	79%	0	6%	14%	2%
EPTB	73%	0	8%	15%	4%
SMND	71%	0	8%	17%	4%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

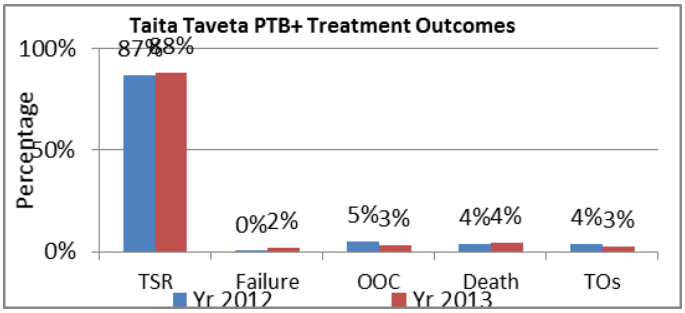


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	91	157
Food support	30	45

Table 7: DRTB patients reported per year

	2012	2013	2014
Monoresistant	0	0	2
RR	0	0	0
PDR	0	0	0
MDR	2	2	0
Total	**2**	**2**	**2**

TANA RIVER

TB case finding:
Tana River reported a total of 380 cases with 5% being children. Among the cases 97% were drawn from the public sector and 3% from the private sector

	Tana River	Kenya
Population	271,889	43,726,652
Urban Population	15%	29.9%
Population Density	7	75
Proportion of Males	50%	49.7%
HIV Prevalence	2.00%	6.04%
Doctor to Population ratio	1:40000	<1:10,000
Nurse to Population ratio	1:5108	1:3333
Health Facility to Population ratio	1:3430	1:4693
HDI	0.39	0.535
Literacy Level	31.4	72%
Poverty Headcount	75	46

Table 2: Service delivery per county versus national

	Tana River	National
TB CNR	138	210
TB/HIV Co-infection rate	10%	35.6%
Number of TB Control zones	3	279
Diagnostic /100,000	7.4	4
Treatment/100,000	9.3	7
Number of treatment	36	3320
Number of diagnostic	17	1920
No of ART/CCC sites	20	3000
DRTB treatment sites	0	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	161	180	157
Retreatment	41	36	27
PTB-	101	118	119
EPTB	48	47	50
SMND	7	6	17

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	94%	91%	98%
TB/HIV co-infection rate	10%	9%	10%
CPT Uptake	100%	97%	100%
ART Uptake	86%	91%	95%

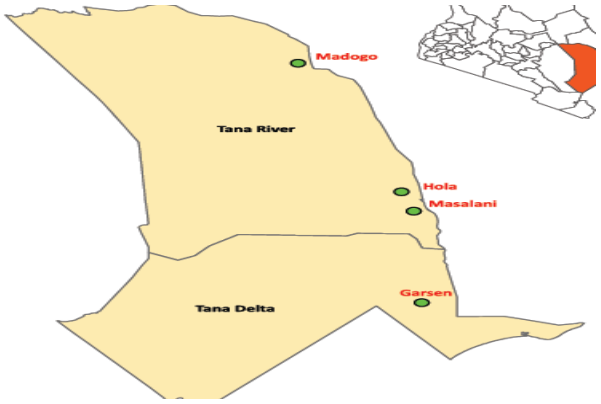


Table 5:Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	87%	0	3%	4%	2%
Retreatment	90%	0	15%	12%	9%
PTB-	89%	N/A	4%	10%	2%
EPTB	85%	N/A	5%	8%	2%
SMND	83%	N/A	4%	10%	2%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

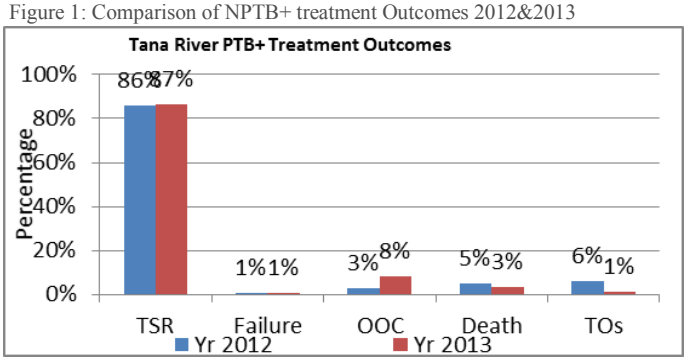


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	18	186
Food support	5	64

Table 7: DRTB patients reported per year

	2012	2013	2014
Monoresistant	**0**	**0**	**0**
RR	**0**	**0**	**0**
PDR	**0**	**0**	**0**
MDR	**0**	**0**	**0**
Total	**0**	**0**	**0**

TB case finding:
Tharaka Nithi reported a total of 1052 cases with 7% being children. Among the cases 67% were drawn from the public sector and 33% from the private sector

	Tharaka Nithi	Kenya
Population	413,743	43,726,652
Urban Population	7%	29.9%
Population Density	152	75
Proportion of Males	50%	49.7%
HIV Prevalence	5.10%	6.04%
Doctor to Population ratio	1:21000	<1:10,000
Nurse to Population ratio	1:1773	1:3333
Health Facility to Population ratio	1:3845	1:4693
HDI	0.55	0.535
Literacy Level	69.7	72%
Poverty Headcount	49	46

Table 2: Service delivery per county versus national

	Tharaka Nithi	National
TB CNR	251	210
TB/HIV Co-infection rate	21%	35.6%
Number of TB Control zones	3	279
Diagnostic /100,000	6.2	4
Treatment/100,000	11.5	7
Number of treatment	62	3320
Number of diagnostic	21	1920
No of ART/CCC sites	16	3000
DRTB treatment sites	0	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	415	435	393
Retreatment	67	52	64
PTB-	178	165	234
EPTB	170	206	214
SMND	40	47	45

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	99%	97%	96%
TB/HIV co-infection rate	24%	21%	21%
CPT Uptake	99%	99%	100%
ART Uptake	97%	99%	95%

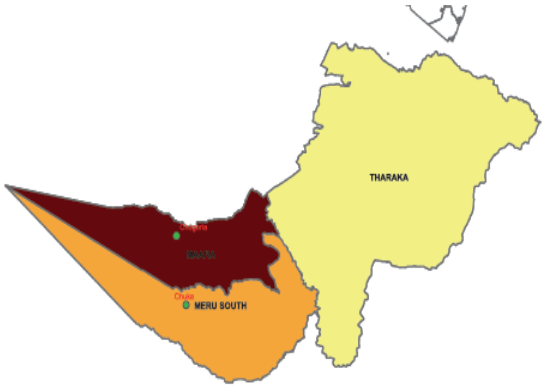


Table 5:Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	94%	0	3%	2%	2%
Retreatment	72%	0	17%	6%	6%
PTB-	91%	0	3%	5%	1%
EPTB	94%	0	0	4%	1%
SMND	96%	0	1%	1%	1%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

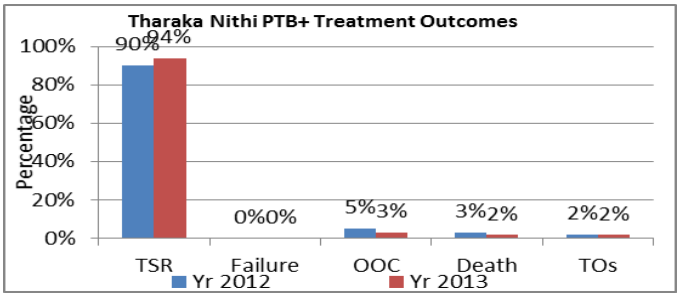


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	68	244
Food support	29	69

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono resistant	**0**	**0**	**0**
RR	**0**	**0**	**0**
PDR	**0**	**0**	**0**
MDR	**1**	**0**	**0**
Total	**1**	**0**	**0**

TB case finding:
Trans Nzoia reported a total of 1291 cases with 5% being children. Among the cases 83% were drawn from the public sector and 17% from the private sector.

	Trans Nzoia	Kenya
Population	927,258	43,726,652
Urban Population	20%	29.9%
Population Density	161	75
Proportion of Males	61%	49.7%
HIV Prevalence	7.20%	6.04%
Doctor to Population ratio	1:273000	<1:10,000
Nurse to Population ratio	1:6110	1:3333
Health Facility to Population ratio	1:9411	1:4693
HDI	0.55	0.535
Literacy Level	65.1	72%
Poverty Headcount	49	46

Table 2: Service delivery per county versus national

	Trans Nzoia	National
TB CNR	138	210
TB/HIV Co-infection rate	35%	35.6%
Number of TB Control zones	4	279
Diagnostic /100,000	10	4
Treatment/100,000	11	7
Number of treatment	48	3320
Number of diagnostic	36	1920
No of ART/CCC sites	16	3000
DRTB treatment sites	6	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	447	502	455
Retreatment	90	64	76
PTB-	490	444	424
EPTB	169	146	156
SMND	62	62	106

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	96%	87%	87%
TB/HIV co-infection rate	36%	35%	35%
CPT Uptake	98%	98%	95%
ART Uptake	84%	76%	74%

Table 5:Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	89%	0	3%	4%	2%
Retreatment	64%	0	15%	12%	9%
PTB-	85%	N/A	4%	10%	2%
EPTB	85%	N/A	5%	8%	2%
SMND	83%	N/A	4%	10%	2%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

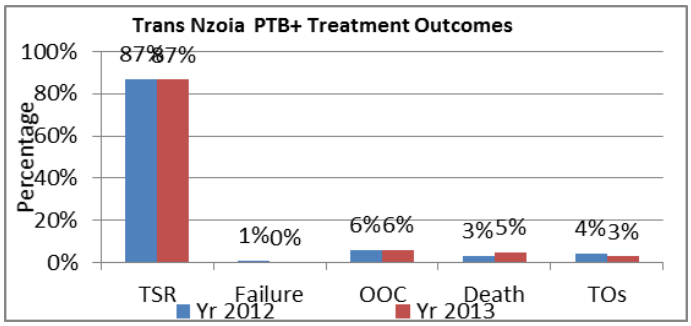


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	187	300
Food support	47	42

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono resistant	**0**	**0**	**0**
RR	**0**	**0**	**0**
PDR	**0**	**0**	**0**
MDR	**1**	**7**	**1**
Total	**1**	**7**	**1**

TB case finding:
Turkana reported a total of 1707 cases with 11% being children. Among the cases 29% were drawn from the public sector and 71% from the private sector.

	Turkana	Kenya
Population	968,755	43,726,652
Urban Population	14%	29.9%
Population Density	12	75
Proportion of Males	50%	49.7%
HIV Prevalence	9.90%	6.04%
Doctor to Population ratio	1:285000	<1:10,000
Nurse to Population ratio	1:14748	1:3333
Health Facility to Population ratio	1:6199	1:4693
HDI	0.33	0.535
Literacy Level	16.9	72%
Poverty Headcount	93	46

Table 2: Service delivery per county versus national

	Turkana	National
TB CNR	175	210
TB/HIV Co-infection rate	24%	35.6%
Number of TB Control zones	3	279
Diagnostic /100,000	3	4
Treatment/100,000	4	7
Number of treatment	22	3320
Number of diagnostic	22	1920
No of ART/CCC sites	25	3000
DRTB treatment sites	3	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	604	582	545
Retreatment	74	66	58
PTB-	700	650	655
EPTB	225	223	176
SMND	78	116	84

Table 4: TB/HIV indicators per year

HIV testing rate	2012	2013	2014
TB/HIV co-infection rate	92.8%	90%	91%
CPT Uptake	26%	25%	24%
ART Uptake	99%	98%	100%
HIV testing rate	91%	84%	100%

Table 5:Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	92%	0	6%	2%	1%
Retreatment	73%	0	23%	0	4%
PTB-	95%	0	3%	2%	1%
EPTB	90%	0	4%	4%	1%
SMND	91%	0	6%	3%	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

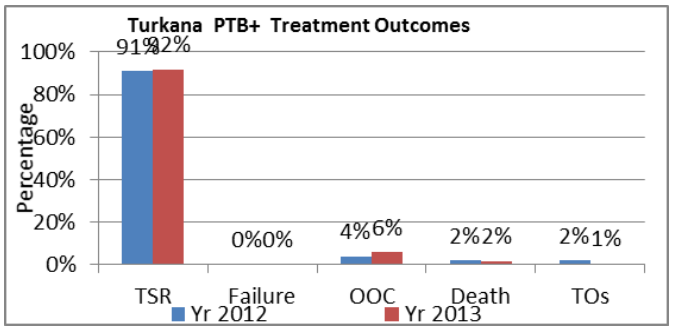


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	180	416
Food support	36	42

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono resistant	0	0	0
RR	0	0	0
PDR	0	0	
MDR	3	0	5
Total	3	0	5

UASIN GISHU

TB case finding:

Uasin Gishu reported a total of 1775 cases with 4% being children. Among the cases 89% were drawn from the public sector and 11% from the private sector.

	Uasin Gishu	Kenya
Population	1,012,674	43,726,652
Urban Population	39%	29.9%
Population Density	305	75
Proportion of Males	49%	49.7%
HIV Prevalence	4.90%	6.04%
Doctor to Population ratio	1:4000	<1:10,000
Nurse to Population ratio	1:706	1:3333
Health Facility to Population ratio	1;5291	1:4693
HDI	0.63	0.535
Literacy Level	82.4	72%
Poverty Headcount	44	46

Table 2: Service delivery per county versus national

	Uasin Gishu	National
TB CNR	173	210
TB/HIV Co-infection rate	42%	35.6%
Number of TB Control zones	7	279
Diagnostic /100,000	3	4
Treatment/100,000	3	7
Number of treatment	33	3320
Number of diagnostic	26	1920
No of ART/CCC sites	26	3000
DRTB treatment sites	10	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	667	612	725
Retreatment	157	122	106
PTB-	553	446	426
EPTB	436	395	374
SMND	26	51	85

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	99%	99%	92%
TB/HIV co-infection rate	62%	63%	42%
CPT Uptake	100%	100%	99%
ART Uptake	96%	91%	91%

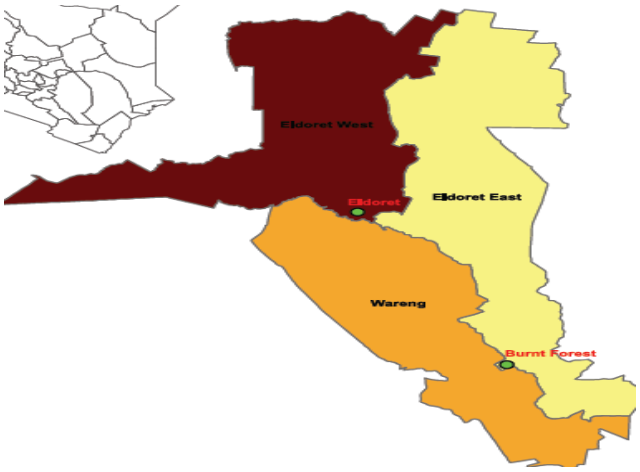


Table 5: Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	87%	1%	6%	4%	4%
Retreatment pos	84%	2%	2%	7%	7%
PTB-	83%	0	7%	7%	7%
EPTB	87%	0	4%	8%	8%
SMND	86%	0	5%	6%	6%

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

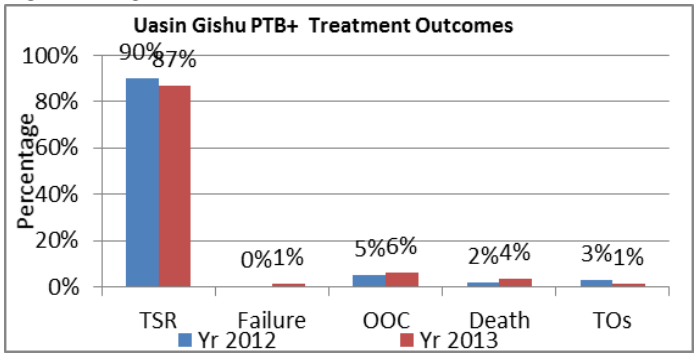


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	305	349
Food support	65	54

Table 7: DRTB patients reported per year

	2012	2013	2014
Monoresistant	**0**	**3**	**1**
RR	**0**	**0**	**0**
PDR	**0**	**1**	**0**
MDR	**6**	**2**	**8**
Total	**6**	**6**	**9**

TB case finding:

Vihiga reported a total of 1037 cases 3% being children. Among the cases 88% were drawn from the public sector and 12% from the private sector.

	Vihiga	Kenya
Population	628,120	43,726,652
Urban Population	31%	29.9%
Population Density	1092	75
Proportion of Males	33%	49.7%
HIV Prevalence	5.70%	6.04%
Doctor to Population ratio	1:185000	<1:10,000
Nurse to Population ratio	1:3930	1:3333
Health Facility to Population ratio	*	1:4693
HDI	0.55	0.535
Literacy Level	74.8	72%
Poverty Headcount	40	46

Table 2: Service delivery per county versus national

	Vihiga	National
TB CNR	157	210
TB/HIV Co-infection rate	43%	35.6%
Number of TB Control zones	4	279
Diagnostic /100,000	5	4
Treatment/100,000	6	7
Number of treatment	50	3320
Number of diagnostic	29	1920
No of ART/CCC sites	20	3000
DRTB treatment sites	6	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	406	400	360
Retreatment	154	138	146
PTB-	344	225	254
EPTB	170	169	220
SMND	36	35	39

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	96%	91%	93%
TB/HIV co-infection rate	44%	43%	43%
CPT Uptake	100%	70%	100%
ART Uptake	97%	36%	95%

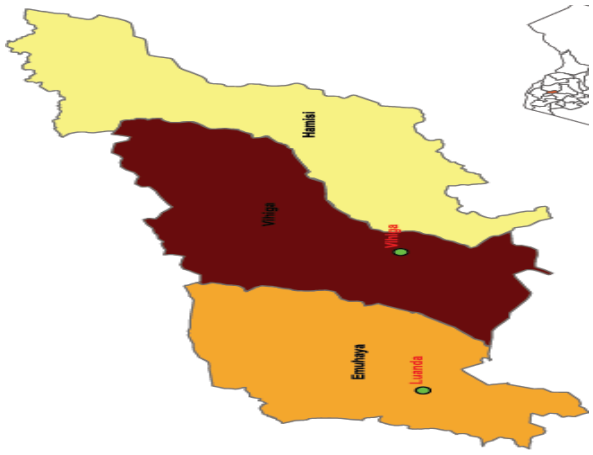


Table 5:Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	88%	1%	3%	6%	2%
Retreatment	89%	0	0	11%	0
PTB-	87%	0	2%	10%	1%
EPTB	81%	0	4%	14%	2%
SMND	95%	0	3%	3%	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

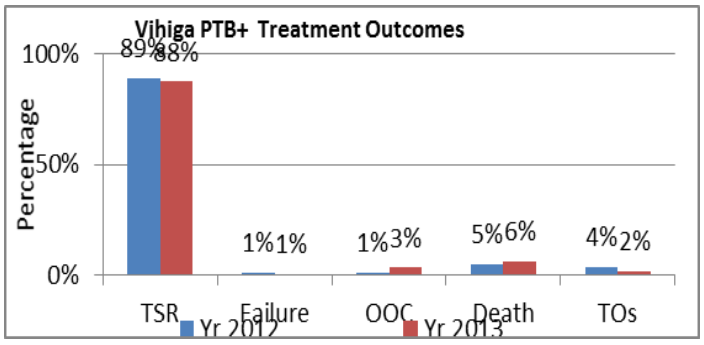


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	217	244
Food support	121	101

Table 7: DRTB patients reported per year

	2012	2013	2014
Monoresistant	0	0	0
RR	0	0	0
PDR	0	0	1
MDR	0	2	3
Total	0	2	4

WAJIR

TB case finding:

Wajir reported a total of 590 cases with 9% being children. All the cases were managed in the public sector.

	Wajir	Kenya
Population	749,660	43,726,652
Urban Population	15%	29.9%
Population Density	13	75
Proportion of Males	50%	49.7%
HIV Prevalence	0.20%	6.04%
Doctor to Population ratio	1:132000	<1:10,000
Nurse to Population ratio	1:4163	1:3333
Health Facility to Population ratio	1:6244	1:4693
HDI	0.39	0.535
Literacy Level	49.5	72%
Poverty Headcount	68	46

Table 2: Service delivery per county versus national

	Wajir	National
TB CNR	78	210
TB/HIV Co-infection rate	2%	35.6%
Number of TB Control zones	4	279
Diagnostic /100,000	2	4
Treatment/100,000	5	7
Number of treatment	33	3320
Number of diagnostic	19	1920
No of ART/CCC sites	4	3000
DRTB treatment sites	0	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	353	267	256
Retreatment	43	40	41
PTB-	314	209	199
EPTB	129	112	67
SMND	36	35	30

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
HIV testing rate	98.5%	98%	97%
TB/HIV co-infection rate	2%	3%	2%
CPT Uptake	100%	94%	100%
ART Uptake	92%	78%	100%

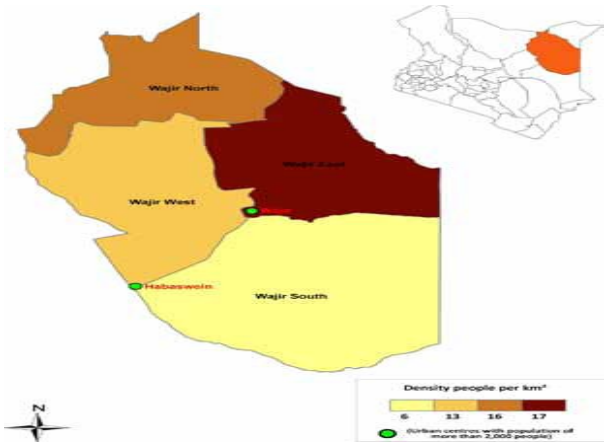


Table 5:Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	91%	0	1%	6%	2%
Retreatment	81%	0	5%	10%	0
PTB-	96%	0	0	2%	0
EPTB	90%	0	2%	6%	1%
SMND	96%	0	0	4%	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

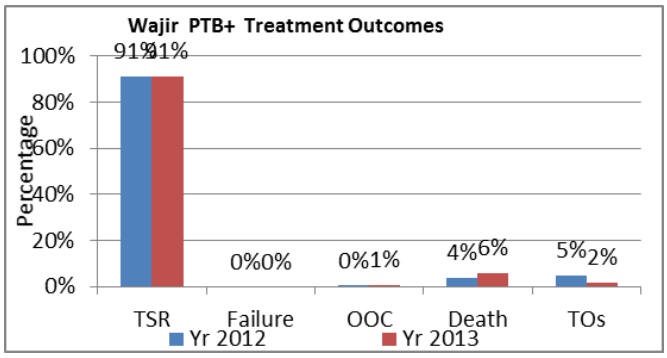


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	10	390
Food support	6	264

Table 7: DRTB patients reported per year

	2012	2013	2014
Monoresistant	0	0	0
RR	0	0	0
PDR	0	0	0
MDR	0	0	0
Total	0	0	0

TB case finding:

West Pokot reported a total of 1,313 cases with 10.8% being children. Among the cases 59% were drawn from the public sector and 41% from the private sector.

	West Pokot	Kenya
Population	580,631	43,726,652
Urban Population	8%	29.9%
Population Density	64	75
Proportion of Males	49%	49.7%
HIV Prevalence	2.40%	6.04%
Doctor to Population ratio	1:73000	<1:10,000
Nurse to Population ratio	1:1979	1:3333
Health Facility to Population ratio	1:5961	1:4693
HDI	0.47	0.535
Literacy Level	19.6	72%
Poverty Headcount	85	46

Table 2: Service delivery per county versus national

	West Pokot	National
TB CNR	223	210
TB/HIV Co-infection rate	13%	35.6%
Number of TB Control zones	4	279
Diagnostic /100,000	4	4
Treatment/100,000	4	7
Number of treatment	21	3320
Number of diagnostic	23	1920
No of ART/CCC sites	15	3000
DRTB treatment sites	4	329

Table 3: Type of TB per year

Type of TB	2012	2013	2014
PTB+	460	558	563
Retreatment	86	128	141
PTB-	233	213	212
EPTB	206	295	217
SMND	15	47	65

Table 4: TB/HIV indicators per year

TB/HIV indicators	2012	2013	2014
No tested for HIV	94.4%	78%	80%
TB/HIV co-infection rate	15%	14%	13%
No on CPT	100%	99%	97%
No on ART	99%	21%	73%

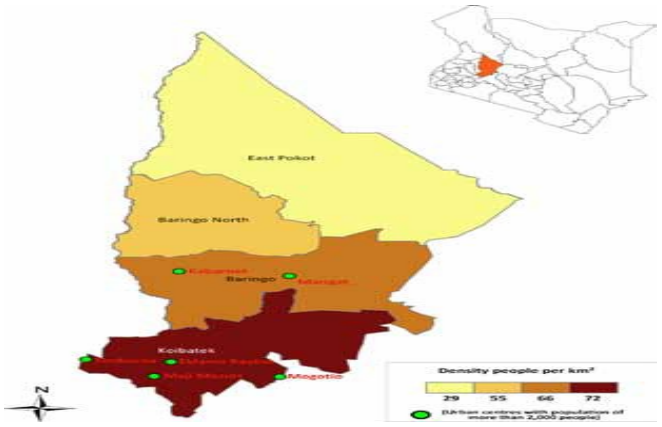


Table 5:Type of TB and their outcomes

Type of TB	TSR	Failure	LTFU	Death	TO
PTB+	83%	1%	10%	5%	1%
Retreatment	66%	5%	23%	7%	0
PTB-	79%	0	15%	6%	0
EPTB	85%	0	12%	3%	1%
SMND	73%	0	7%	7%	0

Figure 1: Comparison of NPTB+ treatment Outcomes 2012&2013

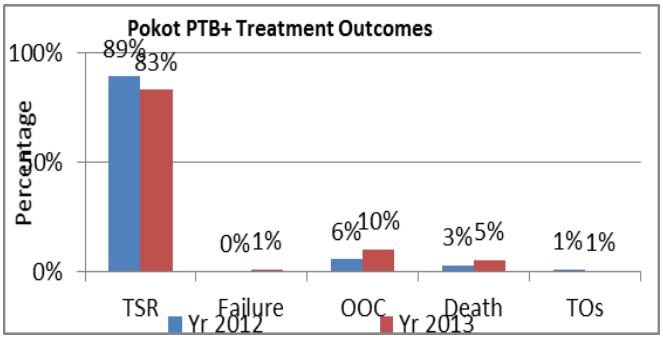


Table 6: Nutritional status and support given to patients

	HIV+	HIV -
BMI <18.5	97	459
Food support	44	184

Table 7: DRTB patients reported per year

	2012	2013	2014
Mono resistant	**1**	**1**	**1**
RR	**0**	**0**	**0**
PDR	**0**	**0**	**0**
MDR	**0**	**0**	**1**
Total	**1**	**1**	**2**

For more information contact:
The National Tuberculosis, Leprosy and Lung Disease - Program
1st Floor, Afya House Annex,
Kenyatta National Hospital Grounds
P.O Box 20781-00202 Nairobi, Kenya,
Telephone: 0773 977 440
Email: info@nltp.co.ke
Website: www.nltp.co.ke

@NTLDKenya

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