



Assessment of the performance of TB surveillance in Kenya main findings, key recommendations and associated investment plan

Accra, Ghana

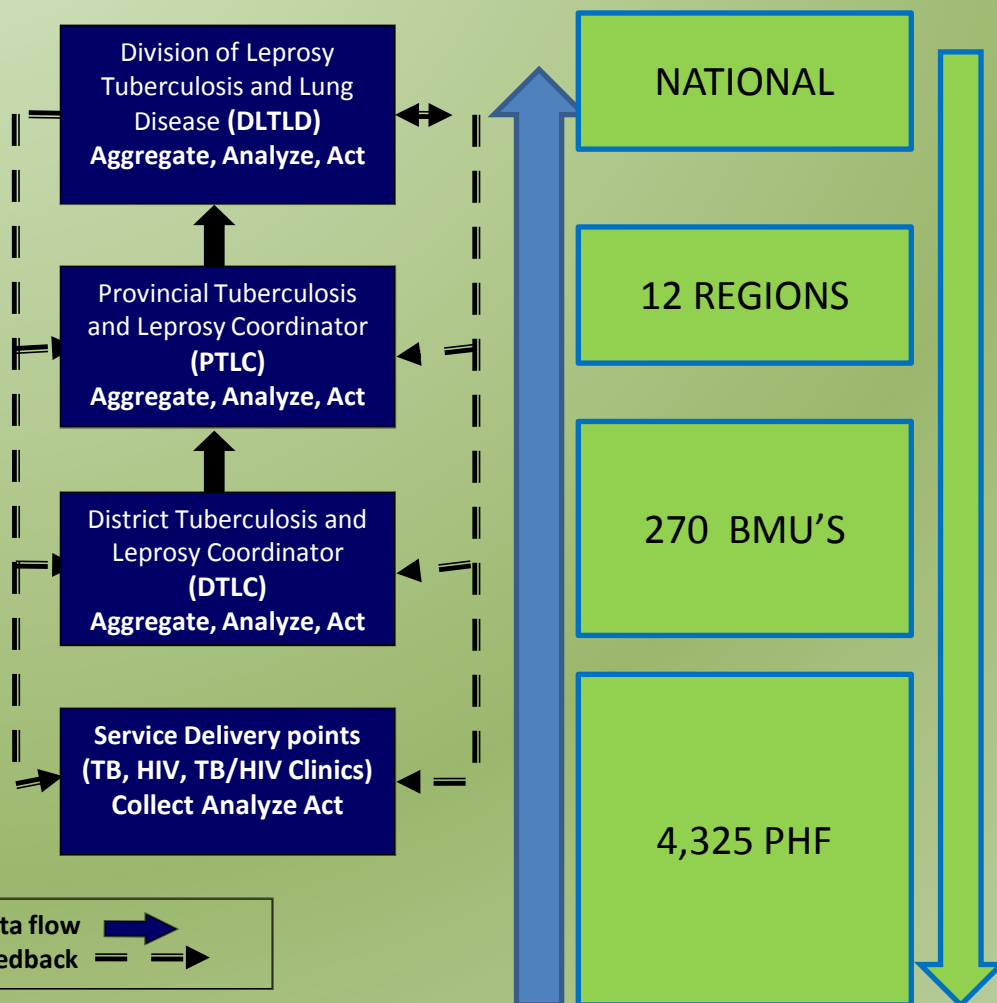
May 1st 2013

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on behalf of the Kenya team



System description: Kenya



- Paper Based R and R system
- Transitioning to case-based electronic recording and reporting system – TIBU System
 - Data entry at district level (Case based data 2012)
 - Data entry at facility level to follow
 - <http://pms.dltld.or.ke>
- Vital registration system still weak and TB mortality Estimates are obtained from WHO Annual reports
- Efforts to strengthen vital registration systems (ICD-10 in hospitals, verbal autopsy (VR) in community)



Assessment method



- Using Standards and Benchmark check list developed by WHO
- Technical review by:
 - Emily Bloss, CDC/DTBE
 - Niki Alami, CDC/DTBE
 - Deanna Tollefson, CDC/DTBE
 - Hillary Kipruto, WHO-Kenya
- 2-5th April 2013



RESULTS

- Data Quality
- Population Coverage and Civil Registration
- Special Populations



Data Quality



Standard	Main findings	Result
B1.1 Case definitions consistent with WHO guidelines	Case definitions are consistent with WHO guidelines	MET
B1.2 TB surveillance system designed to capture a minimum set of variables for reported TB cases	<i>-Paper based system:</i> age x sex breakdown only in new cases sm+, sm- and EP; not for re-treatment cases. (Partially met) <i>-Electronic system:</i> (Met)	PARTIALLY MET- Paper System Met-Electronic System
B1.3 All scheduled periodic data submissions received and processed at the national level	<ul style="list-style-type: none">- 896/900 (99.5%) of expected quarterly reports had been received and processed at national level. However, due to some unusual delays because of the elections, the usual annual meeting that is conducted in April to review and finalize reports had not yet been conducted and is planned for end of April, after assessment.	PARTIALLY MET



Data Quality (cont.)



Standard	Main findings	Result
B1.4 Data in quarterly reports are accurate, complete, and internally consistent <i>(For paper-based systems only)</i>	-Based on a review of data from one District and clinic, we found 100% match in number of cases in TIBU quarterly case report, facility register and district registers and patient cards	<input checked="" type="checkbox"/> Partially met
B1.5 Data in national database are accurate, complete, internally consistent, and free of duplicates <i>(For electronic case-based or patient-based systems only)</i>	<ul style="list-style-type: none">-Data checking for completeness of records: 0 empty records.-Data checking for system missing variables: Data 100% complete for minimum set of variables, except for 1 case missing smear data.-Data checking for duplicates: 2% of cases with duplicate IDs are in system (not yet resolved).-Data checking for inconsistencies: a) -0.05% of cases had age >100 years, b) 0.28% of IDs did not follow correct format, c) 0 cases with date of registration after present date d) 0.005% with date of start treatment after to the date of end treatment	<input checked="" type="checkbox"/> Partially met



Data Quality (cont.)



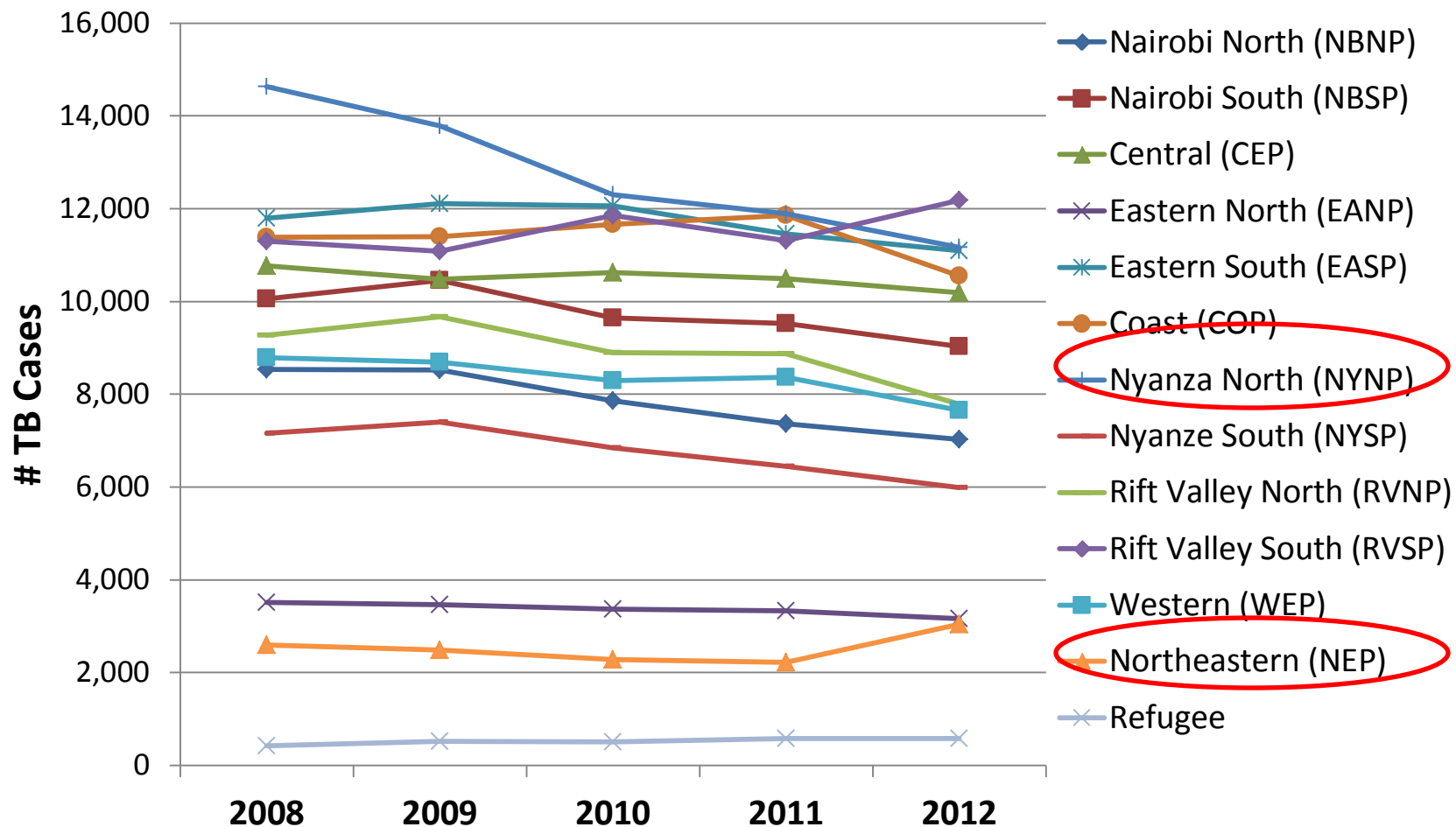
Standard	Main findings	Result
B1.6 TB surveillance data are externally consistent	4798 children smears not done + 5338 children with smear +,smear - and EP = 10,136 total cases $10136/98665 = 10.3\%$	MET
B1.7 Number of reported TB cases is internally consistent (within country)	-No vital registration system with accurate and universal causes of death recorded to measure TB mortality.	NOT MET



Internal Consistency: Number of TB Cases Reported



Number of reported TB cases by district, Kenya, 2008-2012,

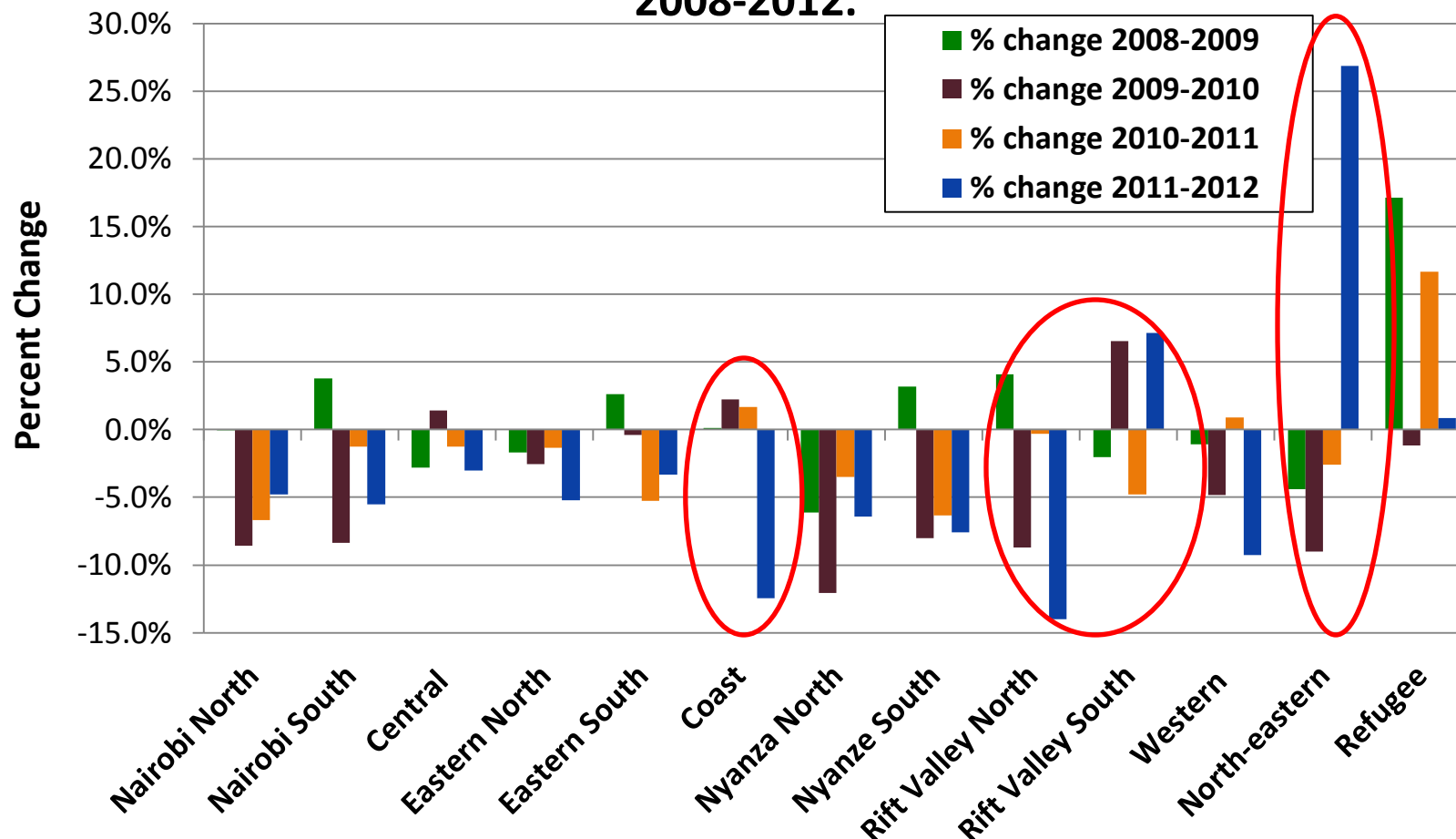




Internal Consistency: Change in TB Cases Reported

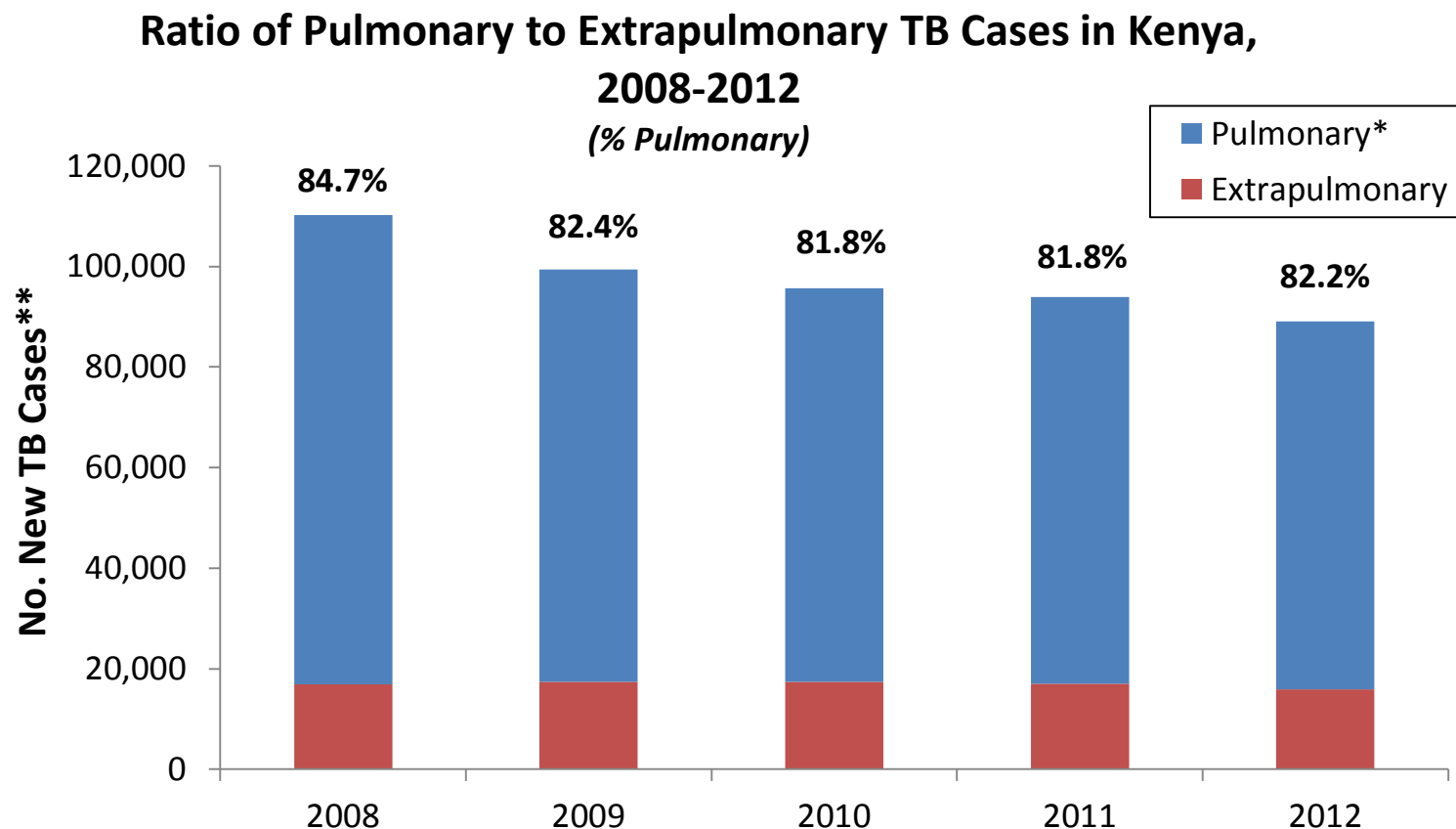


**Percent change in reported TB cases by district in Kenya,
2008-2012.**





Internal Consistency: % Pulmonary TB Cases

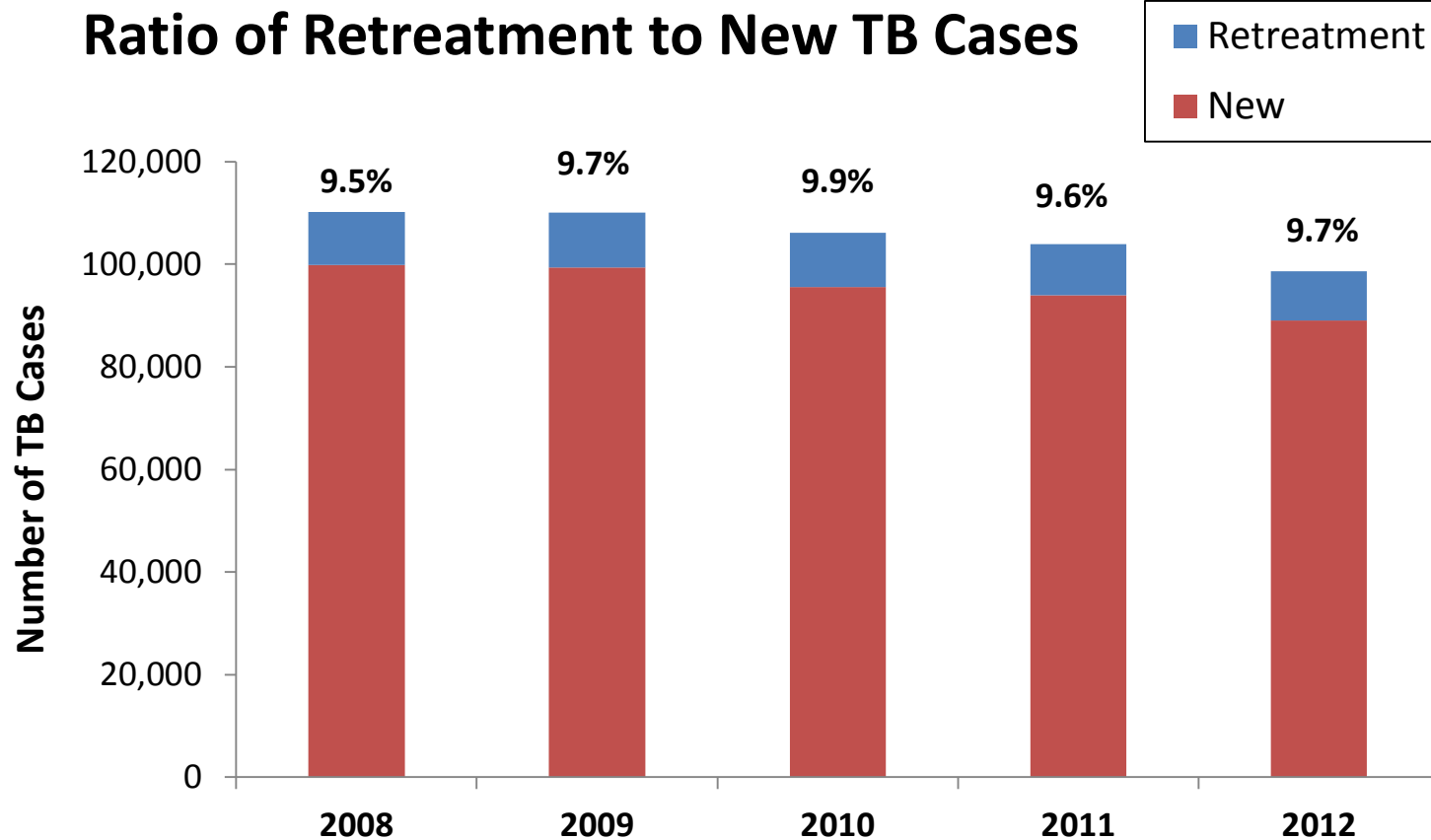


**Pulmonary cases include those classified as smear positive, smear negative, and smear not done.*

***Only new TB cases, retreatment cases not included.*



Internal Consistency: % Retreatment Cases

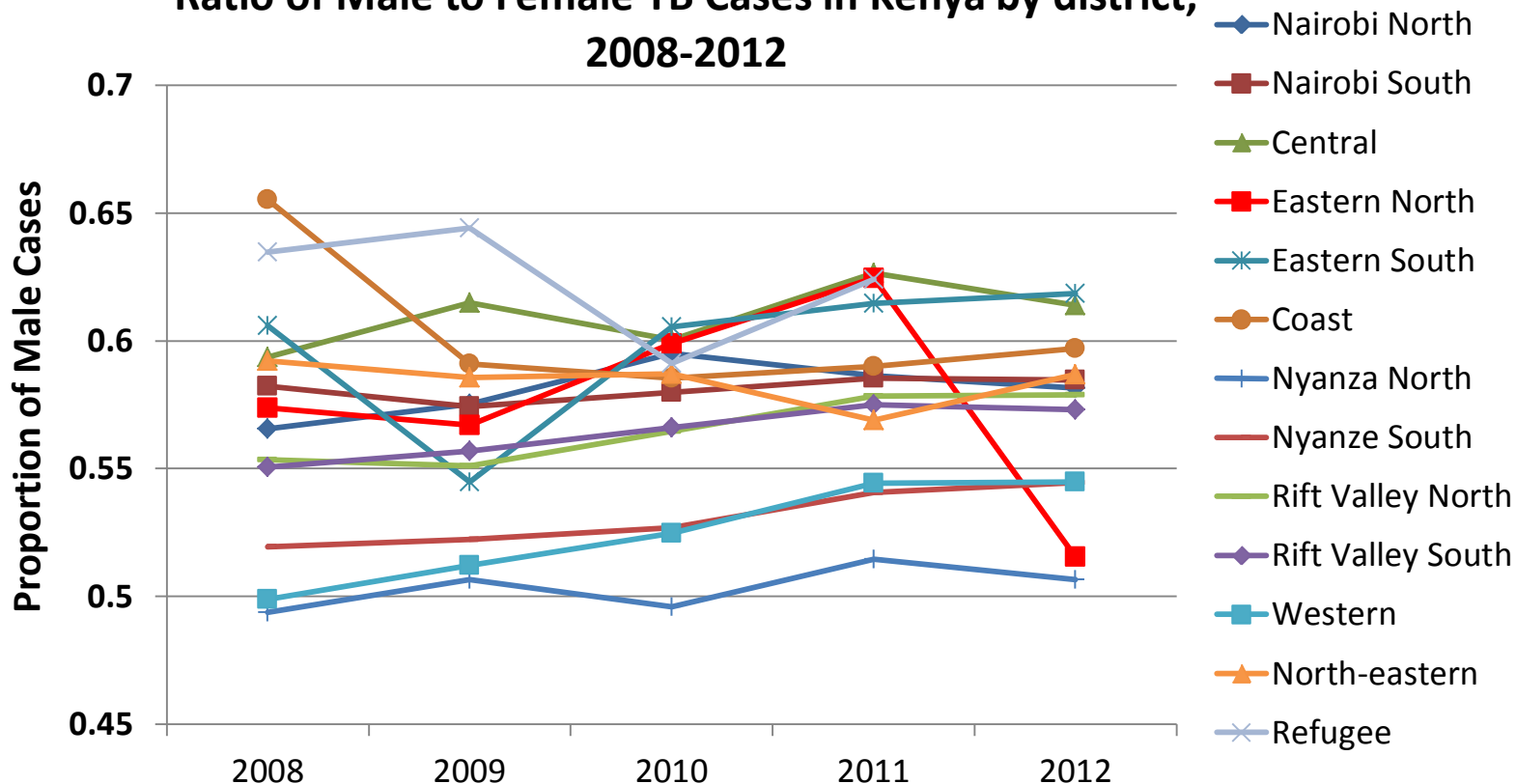




Internal Consistency: Gender Ratio



**Ratio of Male to Female TB Cases in Kenya by district,
2008-2012**



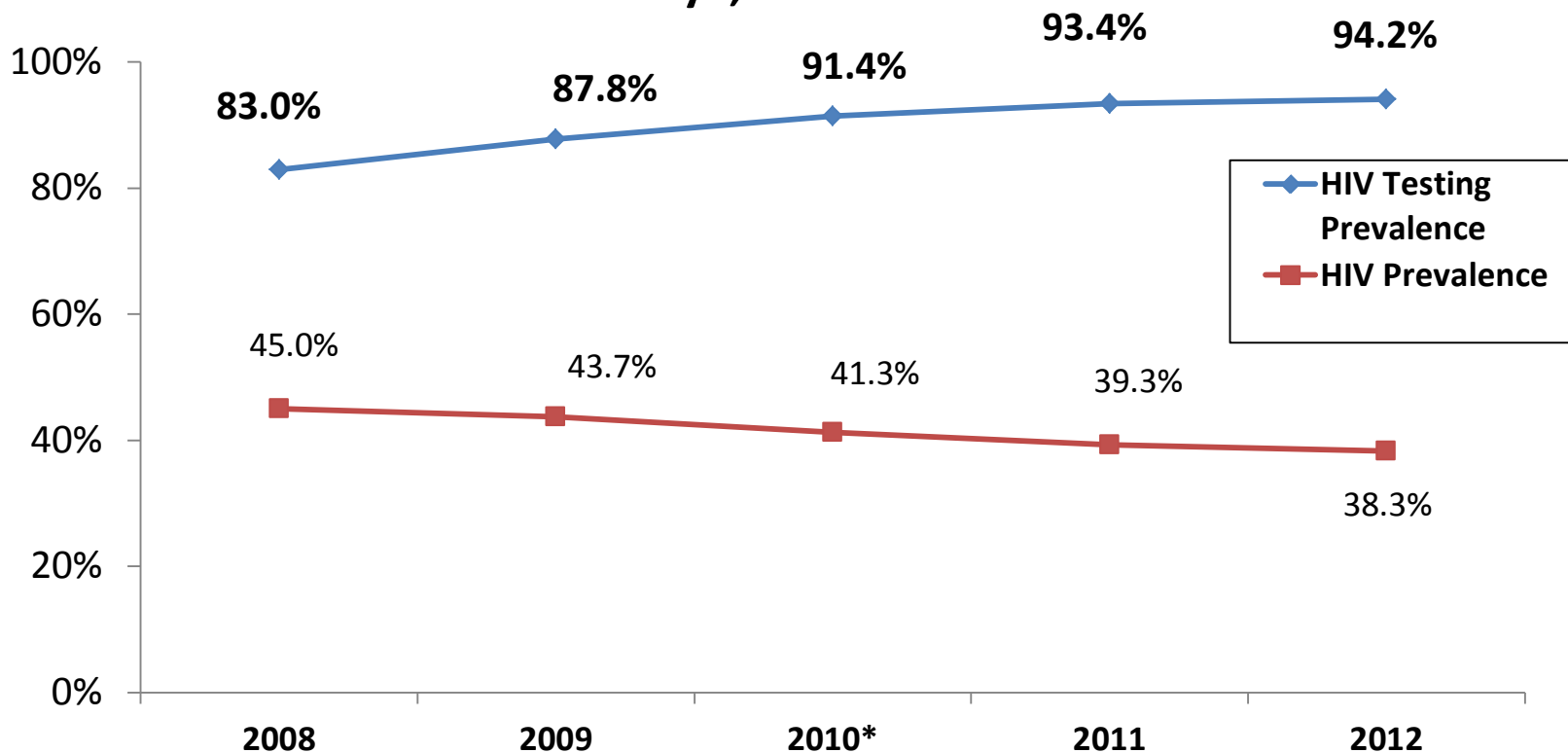
*Cases include smear positive, smear negative, and extrapulmonary cases.
No smears done and retreatment cases not included.



HIV and TB Trends (C2)



HIV Testing and Prevalence among Reported TB Cases, Kenya, 2008-2012





Population Coverage and Vital Registration



Standard	Main findings	Result
B2.1 All diagnosed cases of TB are reported	-In Kenya, TB reporting is a legal requirement -No national inventory study conducted for TB cases in last 10 years	<input checked="" type="checkbox"/> Partially met
B2.2 Population has good access to health care	-Under-5 mortality rate is 73/1000 (WHO, 2009) -46% total health expenditure is out-of-pocket (WHO, 2011) Out-of-pocket expenditure as % of private expenditure on health = 74% (Kenya NHA report, 2011)	NOT MET
B3.1 Vital registration system has high national coverage and quality	<ul style="list-style-type: none">-Cause of death is documented in 47% of deaths and >10% of deaths have ICD codes	NOT MET



Special Populations



Standard	Main findings	Result
C1 Surveillance data provide a direct measure of drug resistant TB in new cases	<ul style="list-style-type: none">-Culture and susceptibility testing only done routinely for high risk groups (re treatment, MDR TB contacts, HCWs), not routinely for new cases-No DRS has yet been conducted-DRS to start soon	NOT MET
C2 Surveillance data provide a direct measure of the prevalence of HIV infection in TB cases	<ul style="list-style-type: none">-In 2012, 92461/98690=94% tested; data of # tested are collected in quarterly reports.	MET
C3 Surveillance data for children reported with TB are reliable and accurate <i>OR</i> all diagnosed childhood TB cases are reported	<ul style="list-style-type: none">-Ratio of age groups 0-4 (n=1336) to 5-14 (n=3981) years is 0.34 (note: This is based on data for cases with sm+, sm-, EP and excludes smears not done because these data are not disaggregated for 0-4 and 5-14 years (smear not done for 4798 children of <15).-No national inventory study conducted for childhood TB cases in last 10 years	NOT MET



Findings: Overview



Data Quality	Population Coverage	Vital Registration	Special Populations
<i>Out of 7 standards</i> <ul style="list-style-type: none">• 3 met• 2 partially met• 2 not met	<i>Out of 2 standards</i> <ul style="list-style-type: none">• 1 not met• 1 partially met	<i>Out of 1 standard</i> <ul style="list-style-type: none">• 1 not met	<i>Out of 3 standards</i> <ul style="list-style-type: none">• 1 met• 2 not met



Recommendations: Short Term



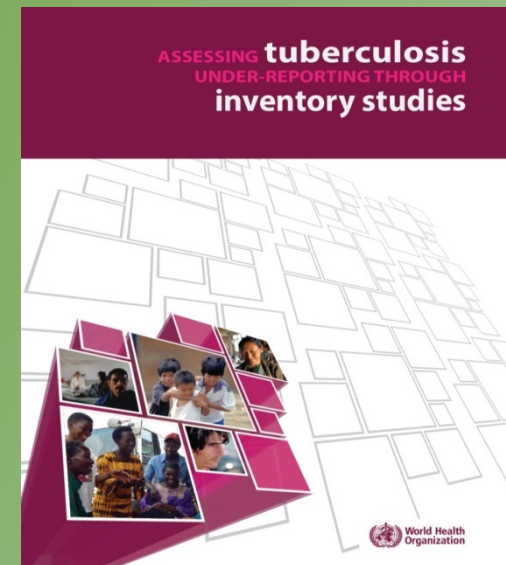
- Hire IT staff (2) and epidemiologist (1) to support electronic system (TIBU) and data analysis at national level
- Perform data audit to assess data quality at national level
- Conduct surveillance system evaluation as system moves into next phase of roll-out
- Conduct a national drug resistance survey



Recommendations: Medium Term



- Assess barriers to health care and previously unreported cases in TB prevalence survey
- Monitor the level of underreporting through inventory studies
- Support strengthening of routine vital registration system to ensure accurate causes of (TB) death in community and hospitals (ICD-10)
- Utilize the information derived from ongoing SARAM in the country





Investment plan



Activity	Estimated Budget
Inventory study to measure the level of under-reporting	US\$ 250,000
Capacity building for data management and statistical analysis – through attending courses and extra staffing at the central level	US\$257,000
Data Quality assessment	US\$ 128,000
Evaluation of the Kenyan Surveillance system	US\$ 30,000
Analysis of available mortality data	US\$ 7,000
Drug resistance survey	US\$ 400,000
Delay in Diagnosis survey	US\$ 56,000
Vital registration – Strengthening on reporting of the underlying cause of death	USD 600,000***
TB Mortality Survey	USD 525,000



Asante!