POST-2015 CONSENSUS

Post-2015 Development Agenda

Nigeria Perspectives

Tuberculosis

SPEAKERS AND CONTRIBUTORS

Anna Vassall

Anna Vassall is a health economist with around twenty years of experience in economic analysis. Her first degree is in economics. She then worked in the NHS supporting funding/contracting. She then took an MSc in Health Planning and Financing at the LSHTM, thereafter working for DFID as a health economist in the UK and Pakistan. This was followed by a period at Royal Tropical Institute (KIT) Amsterdam working on health planning and financing, aid effectiveness and the cost-effectiveness of tuberculosis and reproductive health in a wide range of low and middle income countries. Thereafter she directed and provided economic support to European Community and World Bank funded health sector reform and development projects in Yemen, East Timor, Syria and Sudan. Her PhD is in the economic evaluation of tuberculosis control. She has worked as an academic since 2010 (at LSHTM) specialising in research into the economics of HIV and TB, with a particular focus on health services and systems.

Dr. Gidado Mustapha

Dr Gidado is a public health physician with over 13 years of Tuberculosis specific experience. In addition to an MPH degree, he has an International Master Degree in Health professional Education (MeEdu) from Maastricht University, The Netherlands. He worked at the National TB & Leprosy Training Center, Zaria for over 10 years, and was a zonal coordinator for TB & Leprosy Control for the North/West zone of Nigeria till March 2012. He is a Faculty member for Harvard School of Public Health course on 'Engineering Design for Airborne Infection Control course' and also a facilitator on the Ahmadu Bello University & Obafemi Awolowo University Monitoring and Evaluation course organized in collaboration with Measure Evaluation. He is presently the Senior Technical Advisor Program Management, KNCV/TB CARE I project Nigeria.

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Summary: White Paper Report by Anna Vassall

Nigeria comes third behind only India and China in terms of tuberculosis cases. Every year, around 245,000 Nigerians die from tuberculosis (TB) and about 590,000 new cases occur (of these, around 140,000 are also HIV-positive). TB accounts for more than 10% of all deaths in Nigeria. Every hour, nearly 30 people die from the disease, despite effective treatments being available.

But diagnosis is not always easy, and treatment takes several months; in the meantime, loss of earnings for the sufferer may drive families into poverty, multiplying the burden of the disease.

The current situation can be dramatically improved. The target proposed is a 90% reduction in TB deaths and an 80% reduction in new cases by 2030. In Nigeria, that could be achieved by spending about 81 billion Naira a year to increase detection rates, strengthen primary health care provision and treat many more patients.

This sounds a lot, but it would give each TB patient on average about another 22 years of life. Also, treating one patient should prevent at least one more case developing, so overall this annual investment would produce about 2.8 million additional years of life.

Even valuing a year of life at just 200,000 Naira, the low end of the range, means that each Naira spent gives benefits worth about 10 Naira, as well as saving lives.

Many people carry a latent infection, with only 5% going on to develop active TB within eighteen months and the same percentage at risk of developing TB later in life. The risk of developing active TB is significantly increased following HIV infection, and nearly one in every four sufferers is also HIV-positive.

Most cases are drug-sensitive and respond well to standard treatment with a combination of drugs, but failure to complete a proper course of treatment encourages the development of multi-drug resistant TB (MDR-TB), which is difficult and costly to treat and has poorer outcomes. Around 2.9% of all cases of TB in Nigeria are multi-drug resistant, which is high in comparison to other countries.

Diagnosing active TB is quite complex, since many symptoms are similar to those for other common diseases. Nigeria has one of the lowest detection rates in the world, with only 16% of cases being notified to the National TB and Leprosy Control Programme (NTLCP). A lack of capacity in the primary health care system means that hospitals are often the only places to treat the disease effectively.

Poor rates of diagnosis and lack of access to effective treatment creates significant costs and hardship for TB sufferers and their families. Even for straightforward cases which are cured, the cost to households, mainly from lost income, is around 120,000 Naira, which can be catastrophic for poor families. An average delay of around three months from onset of symptoms to receiving treatment also allows further transmission of the diseases.

Diagnosis using a microscope to screen sputum samples is cheap and the most common method used. However, it may miss substantial numbers of sufferers and more expensive techniques are needed to improved detection rates and find cases of drug-resistant infection. Treatment of most cases takes six months and, in Nigeria, the adherence rate is very high, which contributes to the 86% cure rate.

TB is a big problem for Nigeria but one which can be tackled effectively. This would be a very good investment and would mainly benefit the poorest members of society.

White Paper Report by Anna Vassall

Tuberculosis (TB) is a serious public health problem in Nigeria. Under the guidance of the National TB and Leprosy Control Programme (NTLCP), Nigeria recently finalised it first TB prevalence survey. This reveals that TB prevalence was two times higher than previously thought [1]. Nigeria ranks 3rd globally in terms of the number of new TB cases (behind India and China only). According to the World Health Organisation, around 590,000 Nigerians developed TB in 2013, and of these around 140,000 also are infected with HIV. Around 245,000 people die from TB in Nigeria (of those 85,000 with HIV) every year. Tuberculosis therefore accounts for just over 10% of the total deaths in Nigeria annually. Hence, every hour, almost thirty people die of TB in Nigeria, despite effective treatment being available.

The economic case for sustained investment in TB control in Nigeria is compelling. Put simply, TB treatment is low cost and effective, and this combination results in substantial economic return. Moreover, the delivery of high quality TB services can also prevent the spread of the disease to others and slow the emergence of multidrug- resistant TB (MDR-TB), a dangerous and costly form of TB. Investment in TB is also important from a poverty reduction perspective, where the costs of accessing treatment and loss of earnings may force those with TB further into poverty in Nigeria.

This short report presents the economic case for substantially increasing investment in TB control post 2015 in Nigeria. The report first provides an overview of the targets for TB, the disease and the main TB control interventions. It then outlines the costs and benefits of investment the different TB control interventions in Nigeria; assessing that TB control should be a priority investment in Nigeria's post 2015 development agenda.

Our starting point for this presentation is the global post 2015 strategy, supported by the World Health Assembly. This declaration aims to end the global TB epidemic, with targets to reduce TB deaths by 90% and new TB cases by 80% by 2030, while ensuring no family is burdened with catastrophic expenses due to the disease.

TB control: what can be done?

In simple terms the disease of TB has two stages. The first is *latent TB* infection, when a person first becomes infected with TB. Of those infected, approximately 5% develop *active TB* disease (become TB cases) within 18 months, followed by a further 5% risk of developing active TB disease over a lifetime [2]. The risk of developing active TB increases substantially following HIV infection [3], and active TB left untreated can be fatal. Active TB can be broadly divided into two types: TB which is drug- sensitive – responding well to a standard combination first line treatment; and, multi-drug resistant TB (MDR-TB)

which is resistant to two or more drugs in the first line standard TB regimen. The treatment of MDR-TB has poor outcomes, is complex and can be costly [4-6]. While MDR-TB can be spread and circulated among populations, its origins lie in the misuse, poor delivery and adherence of TB treatment [7]. In Nigeria around 2.9% of all TB cases have MDR-TB, with the World Health Organisation (WHO) classifying Nigeria as a high MDR-TB burden country.

For those with latent TB, who are co-infected with HIV, the WHO recommends the use of preventative therapy to reduce the risk of developing active TB. This is a relatively low-cost intervention, but currently only around 8,000 persons received this therapy in Nigeria in 2013; and this will need to be substantially expanded if deaths from TB are to be reduced.

Identifying those who develop active TB is complex. The symptoms of (active) pulmonary TB include cough, fever, night sweats and weight loss, many of which are similar to symptoms of common diseases. As with most TB programmes, Nigeria relies primarily on 'passive case finding' to identify cases of active TB. This strategy is based on the expectation that those with TB symptoms will present at health services for their symptoms, and that health facilities and staff are sufficiently equipped and skilled to recognise and act on them. Unfortunately, Nigeria has one of the lowest rates of TB case detection in the world, with only 16% of all cases of TB being notified to the NTLCP.

The primary cause of this low rate of case detection is a lack of access to high quality TB services. In many other countries of the world, increased access to TB care has been achieved through a decentralisation of TB services to the periphery of the health system. Correspondingly, NTLCP policy declares TB care can be provided by primary health providers in Nigeria. However, a lack of capacity in the primary health system means that in practice the NTLCP often has to work through hospitals to ensure high quality TB diagnosis and treatment. In addition access to primary health care services is patchy and varies considerably by state, reliant on investment decisions made by each local authority. In addition to the lack of availability of high quality treatment at the primary care level, studies have pointed to a lack of awareness in the population of TB and its symptoms as being a major cause of delay and seeking treatment from inappropriate providers [8].

Aside from resulting in poor case detection, this lack of access to TB services also creates considerable costs and hardship for those with TB (and their families), and promotes the transmission of TB to others. A recent study found that the majority of those with TB symptoms first visit inappropriate providers, with more than 80% first visiting pharmacies and traditional healers, paying for unnecessary treatment [9], which can be extremely costly. Another recent study, set in Ebonyi State, found that even when qualified providers are accessed, patients may continue to incur considerable transportation, food and

visit costs, despite the fact that national policy exempts those with TB (or suspected of having TB) from charges [10]. The overall lack of access to appropriate health services results in an overall delay from symptoms to receiving treatment was around 3 months, during which time others in a patients community may be infected [9].

The lack of access to high quality TB care in has led the NTLCP and WHO to suggest that further strengthening of and decentralisation of TB services will be key going forward, together with improved education programmes and implementing more active forms of case detection particularly in high crowded urban settings.

When TB patients reached appropriate services, the most common method of diagnosis is smear microscopy. This is recommended by the WHO and is widely used In Nigeria, as a low cost method of TB diagnosis. Those who have positive smear test, are described as having 'smear positive' TB, and are the most infectious of TB patients. However, microscopy is far from a perfect test, and may miss substantial numbers of those with active TB [11, 12]. This is a particular issue for those also infected with HIV, and thus this lack of diagnostic accuracy may provide an additional explanation for the low TB case detection rate in Nigeria. Since 2011, the WHO therefore recommends the Xpert MTB/RIF assay for widespread use in the diagnosis of TB. Xpert MTB/RIF increases chances that a case of TB can be diagnosed [13], however the cost per test is considerably higher than that of smear microscopy [14]. A recent study from Nigeria, raised the particular issue of the additional costs of ensuring that Xpert machines are provided with sufficient power supply and room space, where the current infrastructure was weak [15]. However, despite its high cost, Xpert has been found to be potentially cost-effective across a number of sub-Saharan settings [16], and there are few other options for those with HIV.

The treatment of drug susceptible TB involves delivering a standard regimen of TB treatment usually for six months, divided into two phases; an intensive phase for two months and a four month continuation phase. During both phases treatment must be adhered to maximise treatment success and prevent drug resistance developing. In the last twenty years the WHO has recommended the Directly Observed Treatment Strategy (DOTS). Where treatment is provided, Nigeria has a very high coverage of DOTS. With this good treatment monitoring, and high adherence, TB treatment is very successful, with over an 86 % cure rate in Nigeria [1]. It should however be noted that despite the high success of treatment, TB and its treatment can still cause poor households substantial economic loss, primarily from loss of earnings while feeling unwell. A recent study found at that the average cost of a complete episode of TB care to be around US$600 (120,000 Naira) [17] in Nigeria. 44% of households with TB reported catastrophic costs (as defined as spending above 10% of household income). Catastrophic costs from TB

are much higher for the poorest quarter of the population, with around 70% of the households experiencing a case of TB incurring a catastrophic level of expenditure [18].

MDR-TB provides additional challenges. Microscopy cannot identify new drug- resistant TB, but Xpert MTB/RIF can identify cases of rifampcin-resistant TB, a strong indication that a patient has MDR-TB. Culture based tests also are used to diagnose MDR-TB. However, cultures required substantial laboratory infrastructure and even very short gaps in between the patient going to be tested for TB and receiving the test result can lead to high levels of default during the diagnostic process [19]. Unfortunately, the treatment of MDR-TB is also far more complex than first-line treatment and still requires some hospitalisation. It can take 24 months or longer. These multiple issues mean that despite the high burden of MDR-TB, so far in Nigeria diagnosis and treatment coverage of MDR-TB is low, with less than 5% of those with MDR-TB initiated on treatment [20]. Once started on treatment, MDR-TB treatment success is around 63% on par with many other low and middle income countries.

In summary, the above highlights the fact that strengthening TB control to achieve the post- 2015 targets requires substantial investment in both the health and social systems that would support the access to and the delivery of TB services in Nigeria – if deaths from TB are to be dramatically reduced. Particular attention needs to be given to identify and preventing TB in those with HIV and the treatment of MDR-TB cases. Strengthening diagnosis capability also requires substantial support to laboratories and all the systems that support them, including systems to transport samples and quality control services. For treatment, ensuring a high quality of adherence support remains essential, and the treatment of MDR-TB may require substantial infrastructure investment. Programmatic, management and information support to all these services need to have the capacity to enable and support these investments; and ensure that funding flows and is spent in an efficient manner.

Costs and Benefits of reaching TB control targets in Nigeria

Despite the fact that considerable effort needs to be made, TB control has high economic returns for every Naira invested. There are no studies that specifically examine the cost-effectiveness of TB prevention, diagnosis and treatment from Nigeria, aside from one recent study that estimates the costs per person diagnosed using smear microscopy at around US$50 [21]. Using data from the WHO, we estimate that it costs around US$230 to treat a case of drug susceptible TB in Nigeria. We double these direct costs to reflect the potential costs of additional health systems strengthening; that will need to be substantial to ensure many more cases of TB are detected. We estimate the costs of MDR-TB treatment in Nigeria to be around US$7000, based on reported expenditures from the WHO, and an assumption of six months initial hospitalisation. We also add a cost of US$30 to screen and provide IPT to those living

with HIV. We add a 20% mark-up to both these costs to represent additional programmatic support for scale-up.

To reach the global TB target by 2030 of reducing deaths from TB from the current 245,000 to 24,500 will require a substantial rapid effort, with high levels of detection, diagnosis and treatment provision. We therefore estimate the annual total cost of the TB control programme required to reach the targets to be around US$406 million (or around 81 billion Naira). This is US$ 341 million (or around 68.2 billion Naira) above the current TB programme budget funding of around US$65 million (or 13 billion Naira). It is also higher than the budget estimate provided by to the WHO of US$139 million (or 27.8 billion Naira), primarily due to our additional costs for health systems strengthening and treating MDR-TB.

This investment will give anyone in Nigeria who develops TB around 22 additional years of life on average, based on the fact that the average age to contract TB in Nigeria is around 30 years, and the life expectancy in Nigeria is currently around 52 years – and including an adjustment for the fact that some with TB will self-cure. Finally, treating TB does not just benefit the patient, but also prevents transmission, conservatively reaching and treating one person with TB, will prevent at least one more case of TB. In total, if scaled up to levels to achieve the TB targets the TB programme in Nigeria will produce around 2.8 million additional years of life for the annual investment described above.

We value the life years saved using the recommended methods of using an economic value of 200,000 and 1 million Naira. Applying this value to life years saved describe above, we find (see table below) that the economic return per Naira spent ranges from around 10 to over 60 Naira, making TB control a sound economic investment post -2015.

Target	Costs (Naira millions)	Benefits (Naira millions)				Benefit for Every Naira Spent			
		3%		5%		3%		5%	
		YLL L	YLL H	DALY L	DALY H	DALY L	DALY H	DALY L	DALY H
Reduce TB deaths by 90%	81,208	714,293	3,571,463	589,966	2,949,829	**$10.4**	**$52.4**	**$8.7**	**$43.3**

We conclude that the economic case for TB control in Nigeria is strong. Not only is TB control a sound investment, its benefits will primarily accrue to the very poorest. TB control continues to be chronically under-funded in Nigeria, yet the costs of addressing TB are not substantial compared to other development and health investments. The economic case for strengthening the health systems and services to support TB control presented here is therefore one of the most convincing in the area of

public health today – and TB control should be a core part of the post-2015 development effort in Nigeria. Nevertheless, financing this effort will take considerable political will - given that the NTLCP estimates that only 47% of current TB control needs are financed [1].

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The economic case for investment in tuberculosis control post 2015

COPENHAGEN CONSENSUS

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TB in Nigeria

Nigeria ranks 3rd globally in terms of the burden of TB on the population.

Around 590,000 Nigerian's developed TB in 2013 and around 245,000 die from TB every year.

Tuberculosis therefore accounts for just under 10% of the deaths in Nigeria every year.

Every hour, 30 people die of TB in Nigeria, despite an effective treatment being available.

Improving health worldwide

same
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TB and the poor

Officially TB treatment is provided for free, but studies in Nigeria consistently show that having TB can be catastrophic to poor households.

The costs of TB have been estimated at being around US$600 (120,000 Naira) for each household in lost earnings and costs for nutritional support.

Almost half of all households with TB will face catastrophic costs, losing more than 10% of their household income.

What can be done?

- We need to prevent more cases of TB and reduce deaths from TB by 90% by 2030 and ensure that no family is burdened with catastrophic expenses due to TB

- The primary challenge in Nigeria is that currently only 16% of TB cases are detected – so we need to expand access to TB services, through health systems strengthening, particularly at the primary care level

- This is particularly important in the case of persons living with HIV, where access may also be provided to preventative treatment

- We need to ensure TB treatment is provided to maximise patient outcomes and minimise cost to the patient (86% currently)

- We need to ensure that those with the drug resistant form of TB are identified and treated

same
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The economic case for investment TB control in Nigeria

1. Nigeria has one of the largest TB problems in the world, and is lagging behind particularly in terms of case detection

2. Globally, one of the most cost-effective health interventions, and it is feasible to substantially impact the epidemic

3. TB is treatable, low cost – US$ 230 - (45,800 Naira), and helps the poor

4. In Nigeria a return of between 10 and 52 dollars per dollar spent

5. BUT, may take considerable investment in strengthened health systems and political support at all levels

Nigerian TB program 'Journey so far'
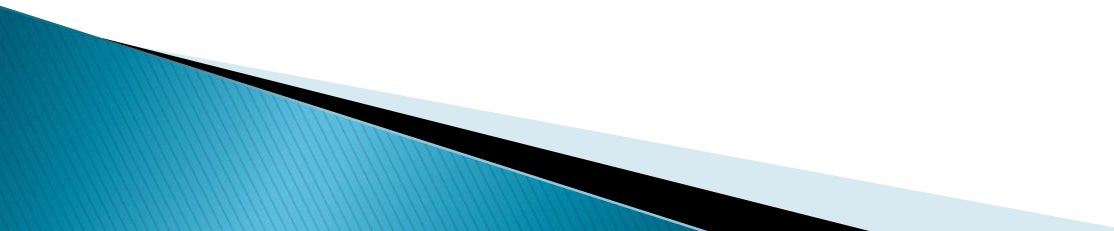
Paper presented
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@
Post 2015 Journalist Seminar
Copenhagen Consensus Center
15th May 2015
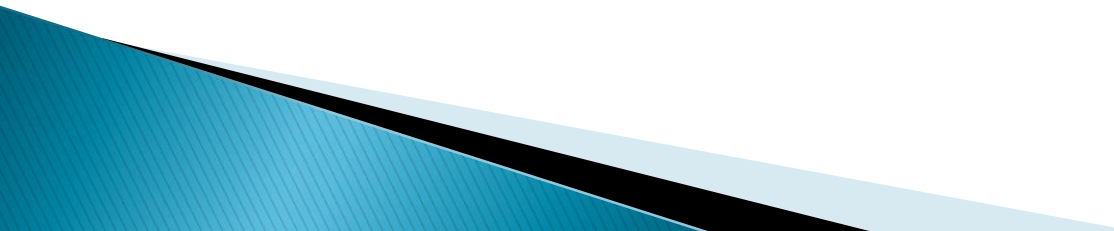
1. *Disclaimer: I take total responsibility for the content of the presentation as it is not the opinion of my organization.*
2. *Conflict of interest: I have no conflict of interest*

Presentation outline

- Basic facts on TB
- Background including burden
- Strategic approaches for TB control
- Service delivery coverage
- Journey so far
- NSP 2015-2020
- Challenges
- Way forward

Basic facts on TB

- Caused by a bacteria
- Transmission is airborne
- Commonest symptom is cough >2 weeks
- Diagnosis is by lab test of sputum/X-ray
- Treatment is for 6 months only
- TB is curable
- One case of TB if not on treatment can infect 10-15 other persons
- Lab test and medicines are free in designated centers nationwide
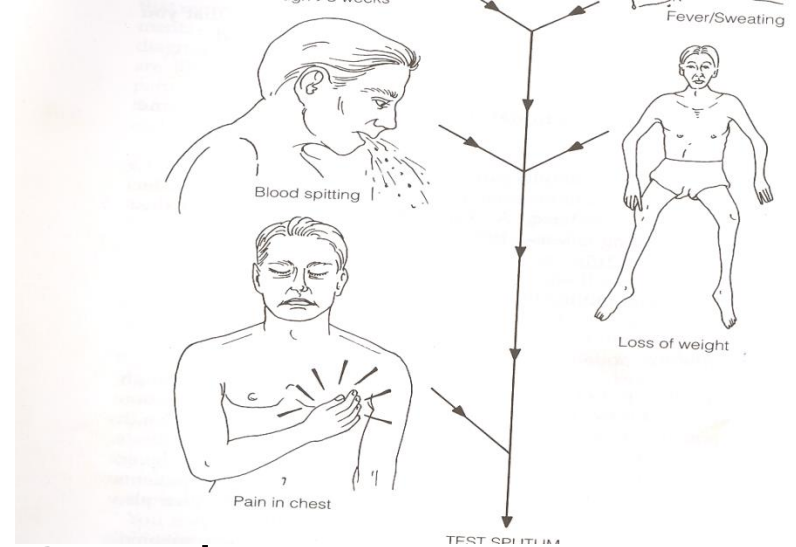
Background-1

Estimated TB incidence rates, 2013
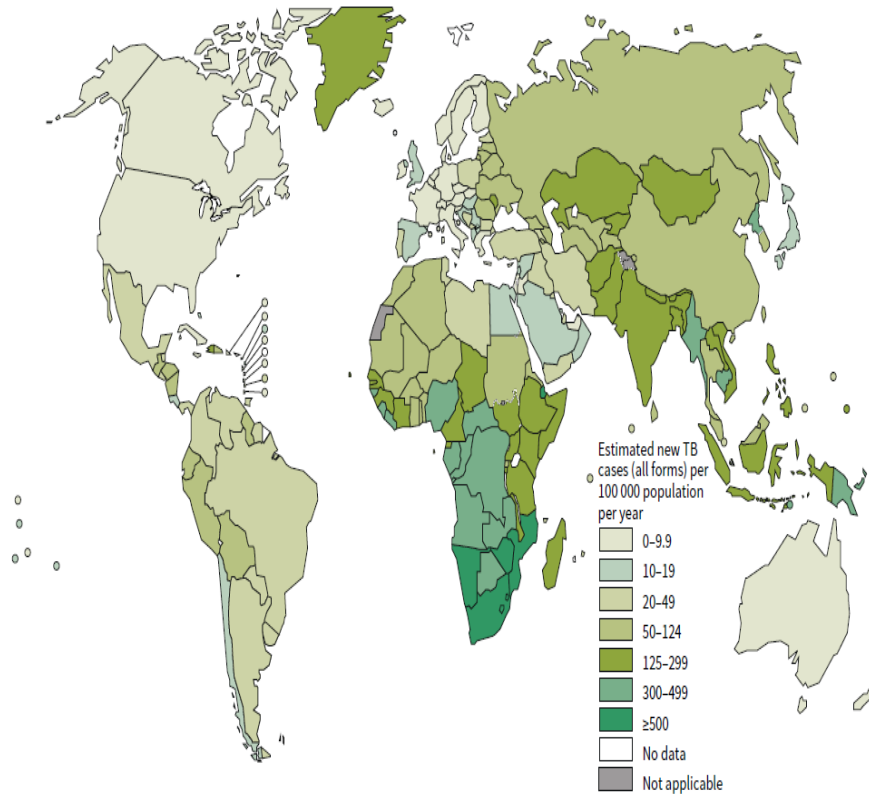
TB cases and deaths, 1990–2013 absolute numbers
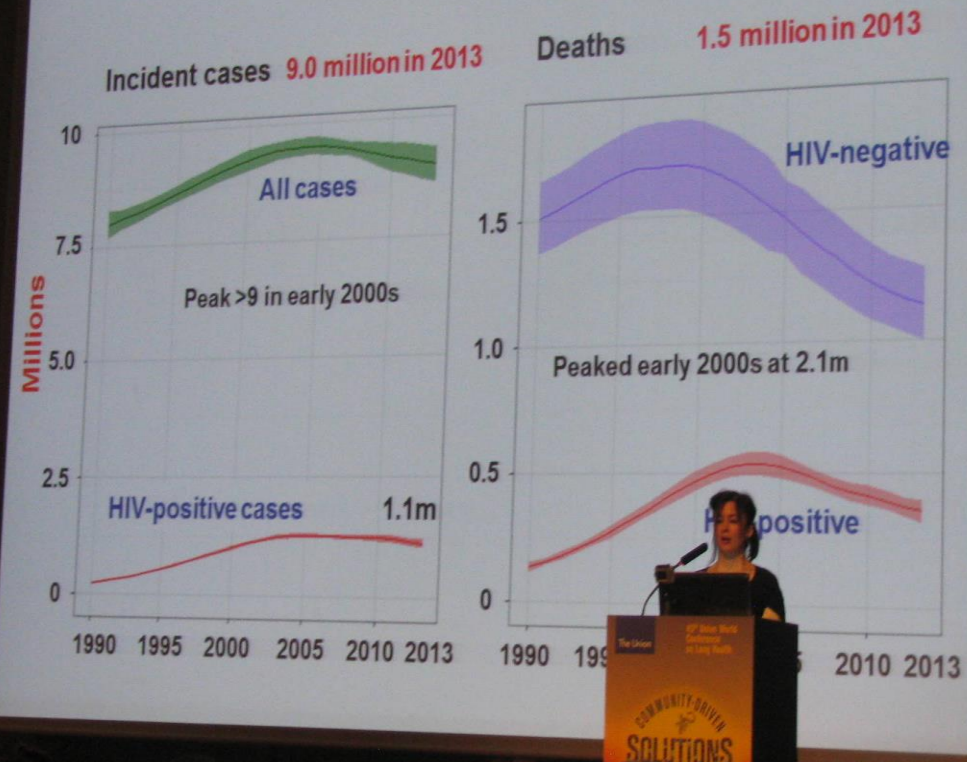
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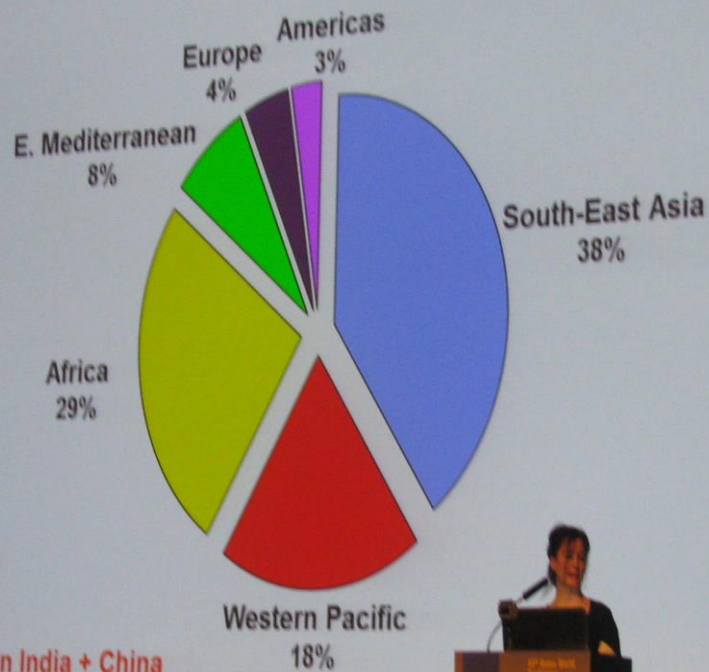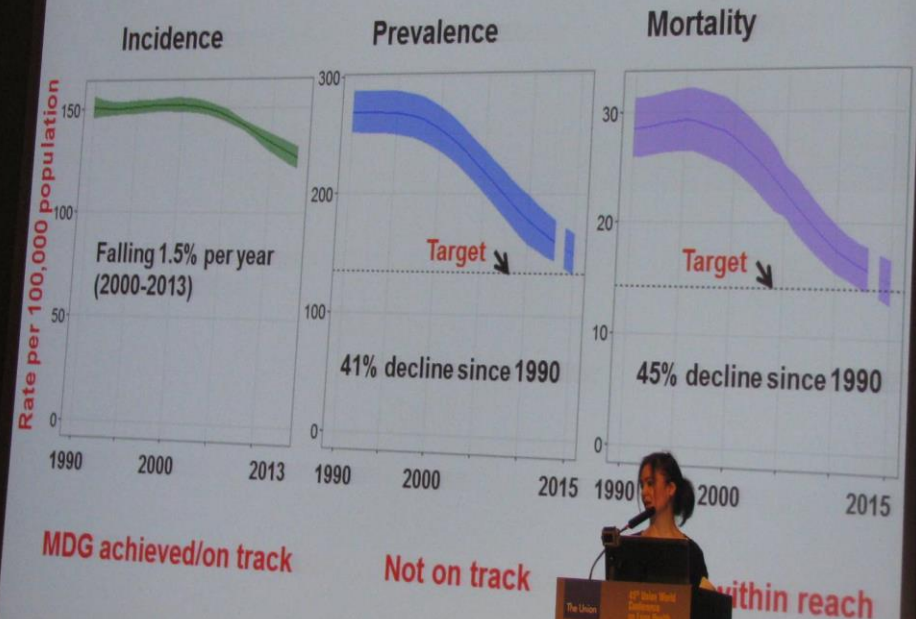
Background ---3

Population	>165M
Global ranking among 22 high burden countries	3rd
Incidence rate/100,000 population	338
Prevalence rate/100,000 population	326
TB/HIV co-infection rate	19%
Notification rate/ 100,000	57.3
Case detection rate	17%
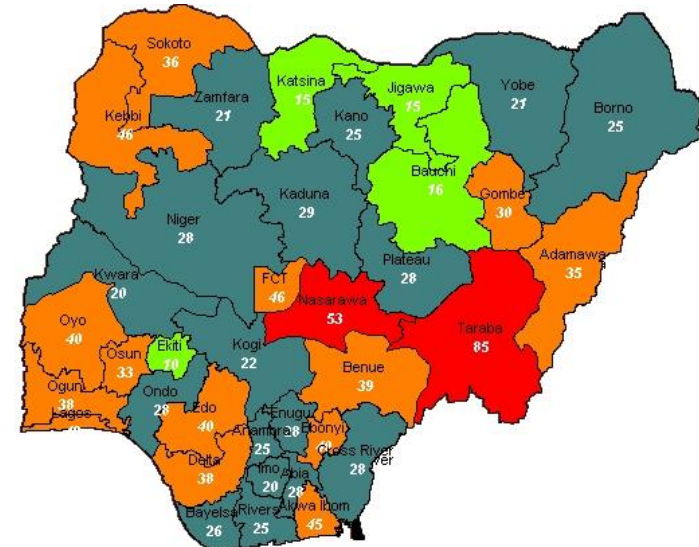
MDR TB Burden in Nigeria

Global TB Report 2012

- MDR among new cases %: 3.1 (0.1 -7.1)
- MDR among retreatment cases %:10 (2.1-18)

Estimated number of MDR TB cases among notified cases

Among new cases: 2500 (80-5700)

Among retreatment cases: 890 (180 -1600)

Report of National DR TB Prevalence Survey, August 2012

- MDR among new cases: 2.9%
- MDR among previously treated cases: 14.3%

Objectives/Targets

MDGs

The global burden of TB (prevalence & death rates) will be reduced by 50% by 2015 relative to 1990 level.

Global plan

The global incidence of TB disease will be less than or equal to 1 case per million population per year by 2050.

National/Nigeria

1. To detect at least 70% of the estimated infectious (smear-positive) cases.
2. To achieve a cure rate of at least 85% of the detected smear-positive cases

❑ Specific services delivery targets
  1. 1 diagnostic center/80,000-100,000 population
  2. 1 treatment Center/25,000 population

TB Control Strategies:

- Early case finding and proper case management

- Comprehensive management of the long term physical and socio-economic effects of the three diseases

- Integration of services into the general health services

- Promoting Public-Public-Private partnerships (PPP)

- Collaboration & *coordination* with bilateral and multi lateral partners/*stakeholders*

- Ensure functional commodities management system

- Human Resource Development

Service coverage

- Over 1,600 AFB microscopy labs *(1:30,000 popn)*

- 5,389 DOTS centers (service delivery points *(1:99,000 popn*)

- 110 GeneXpert MTB Rif sites nationwide

- 6 culture/DST laboratories (2 of which are NRL with capacity for both 1st and 2nd line DST)

- 15 Multi-drug resistance treatment facilities notionwide with 377 beds

- 22 States providing community system for treatment of MDR TB

Journey so far---1

10 year Trend of all forms of TB cases

Year	Cases
2005	66,848
2006	74,225
2007	86,241
2008	90,311
2009	94,114
2010	90,447
2011	93,050
2012	97,853
2013	100,401
2014	91,354
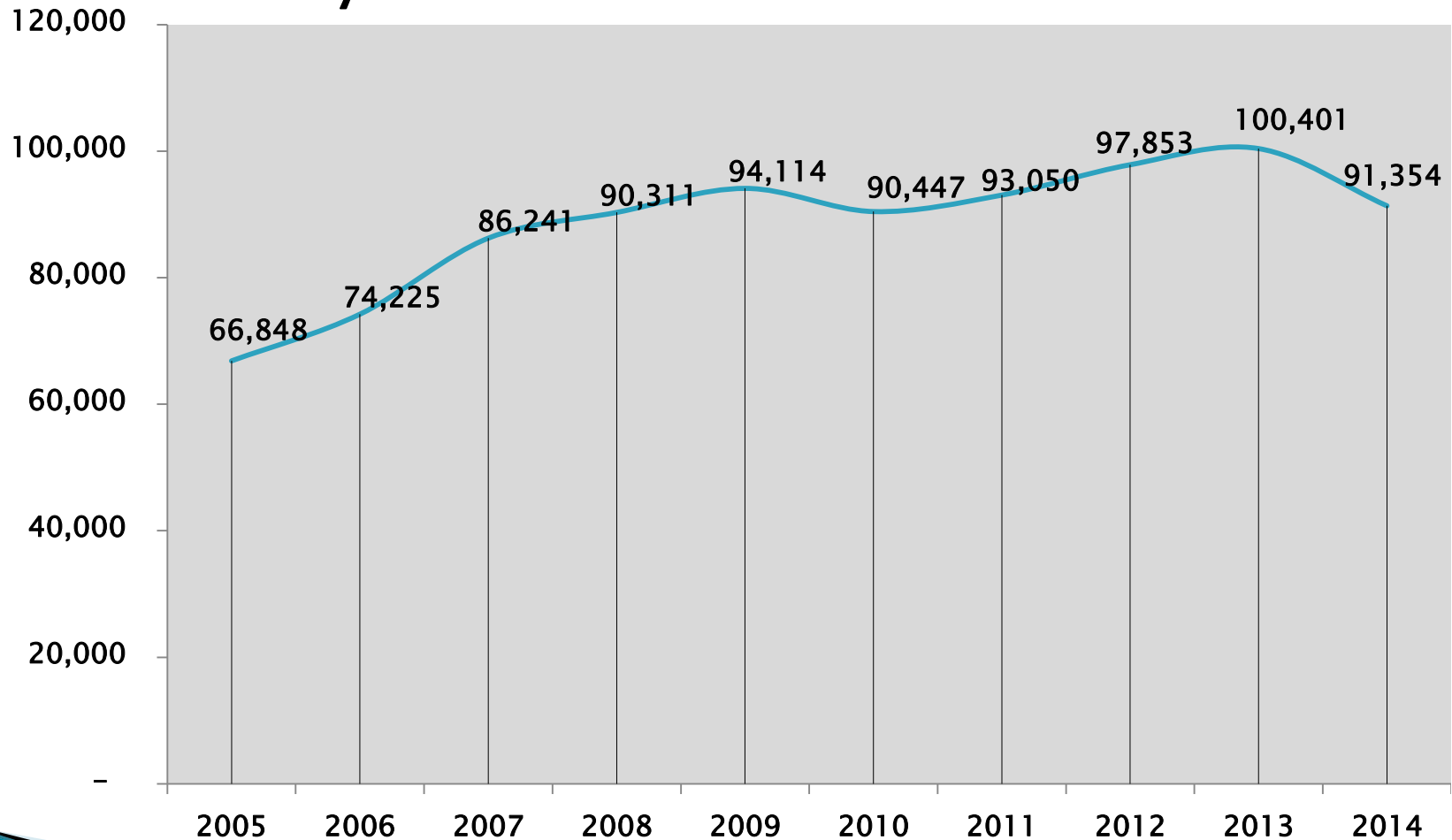
Trend of TB CNR/100,000 by region
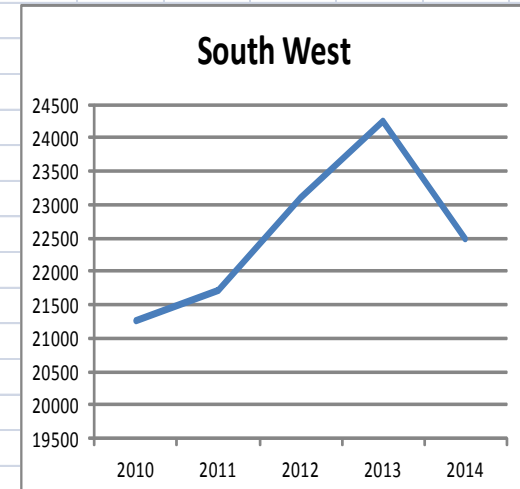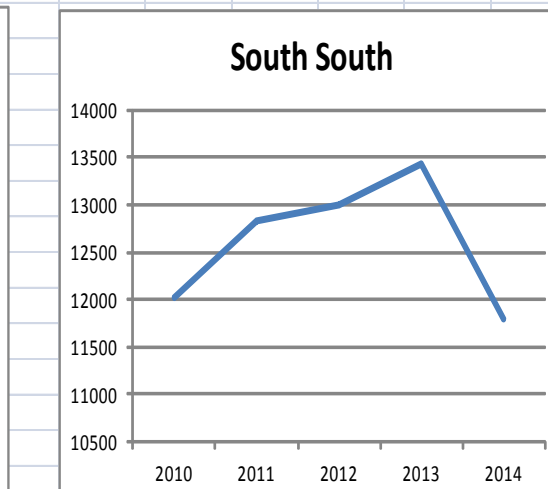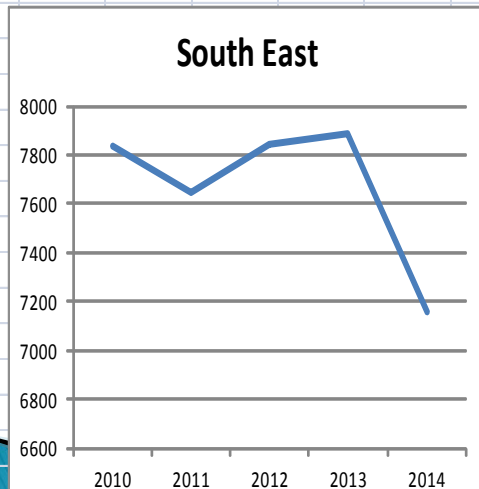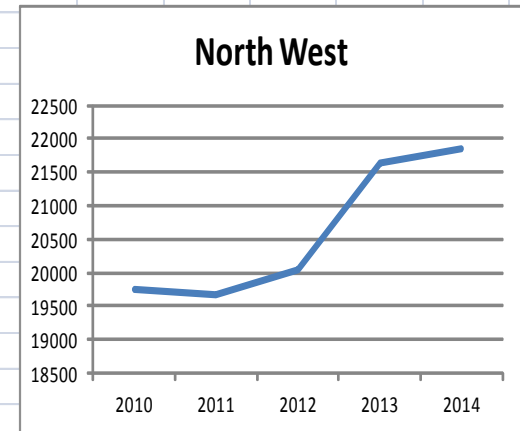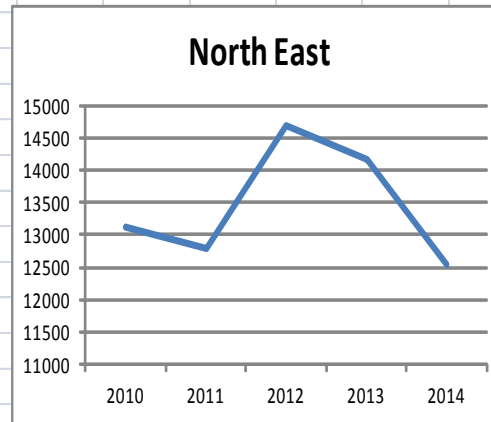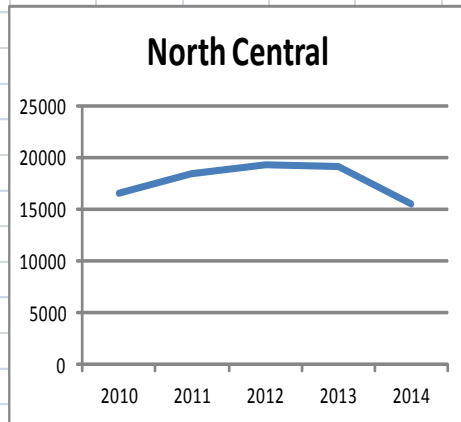
A map of state level and Annual TB CNR/100,000 population.
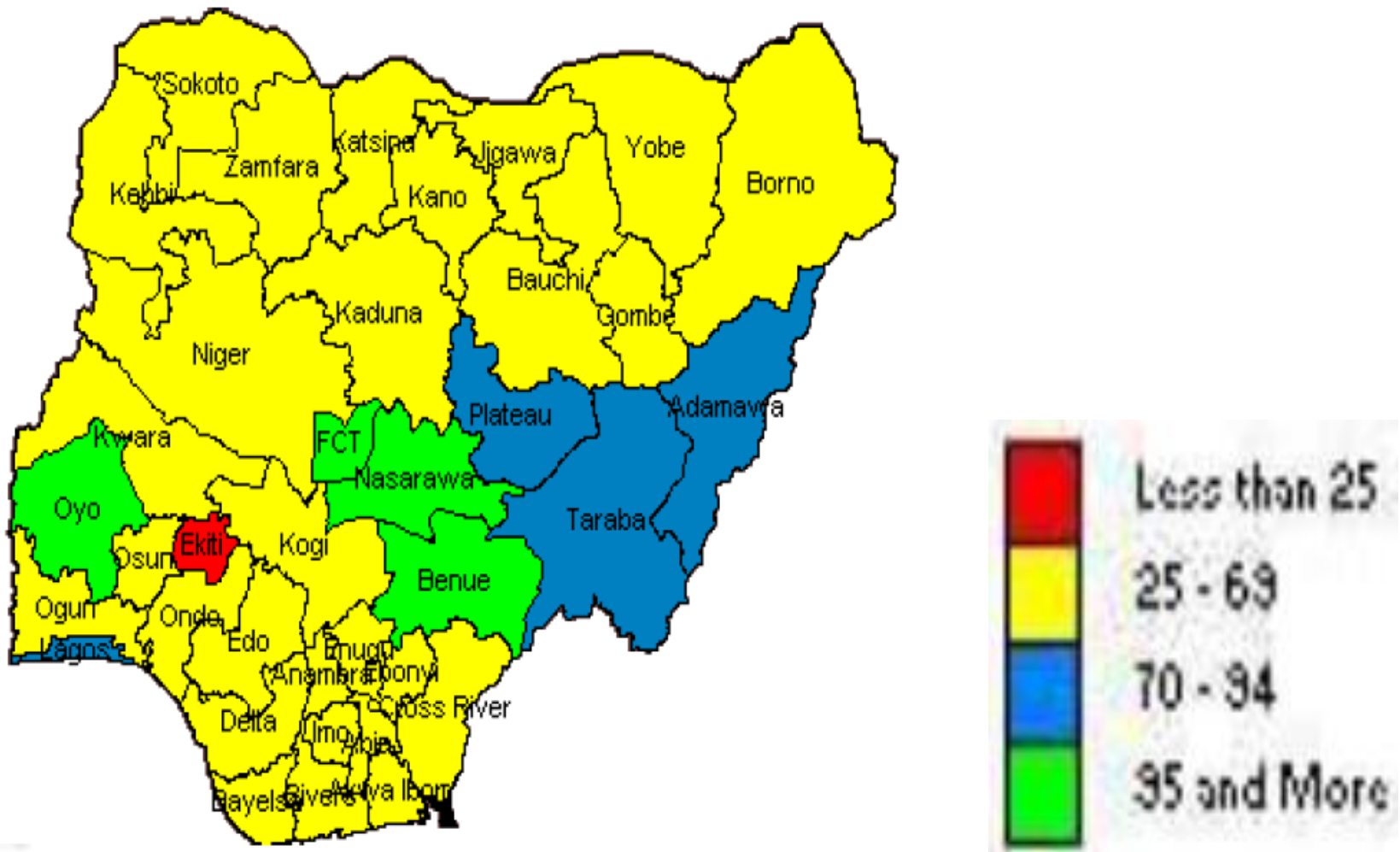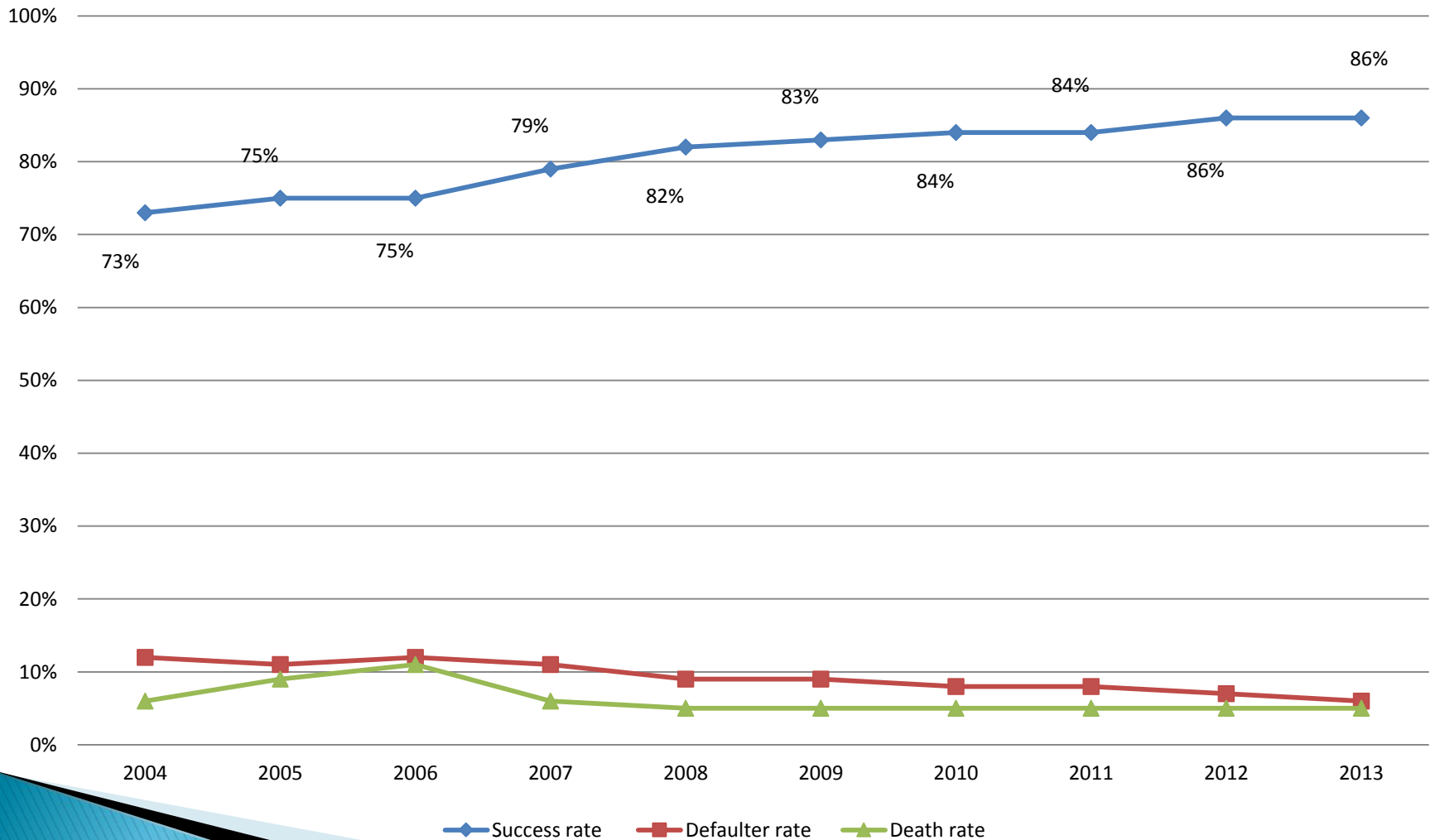
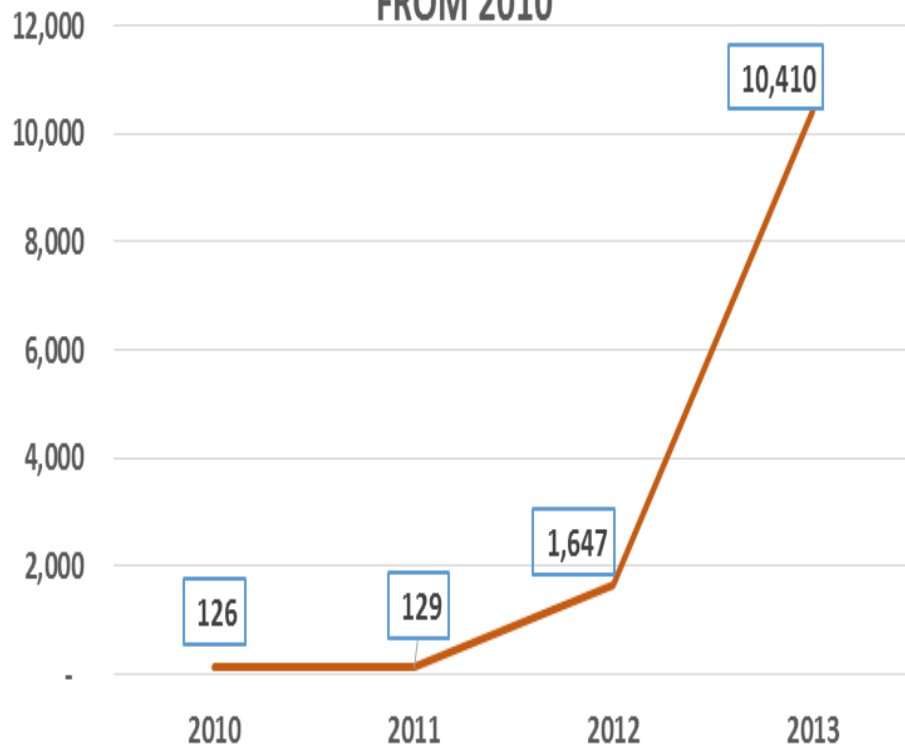# Prevalence of HIV by gender and age group
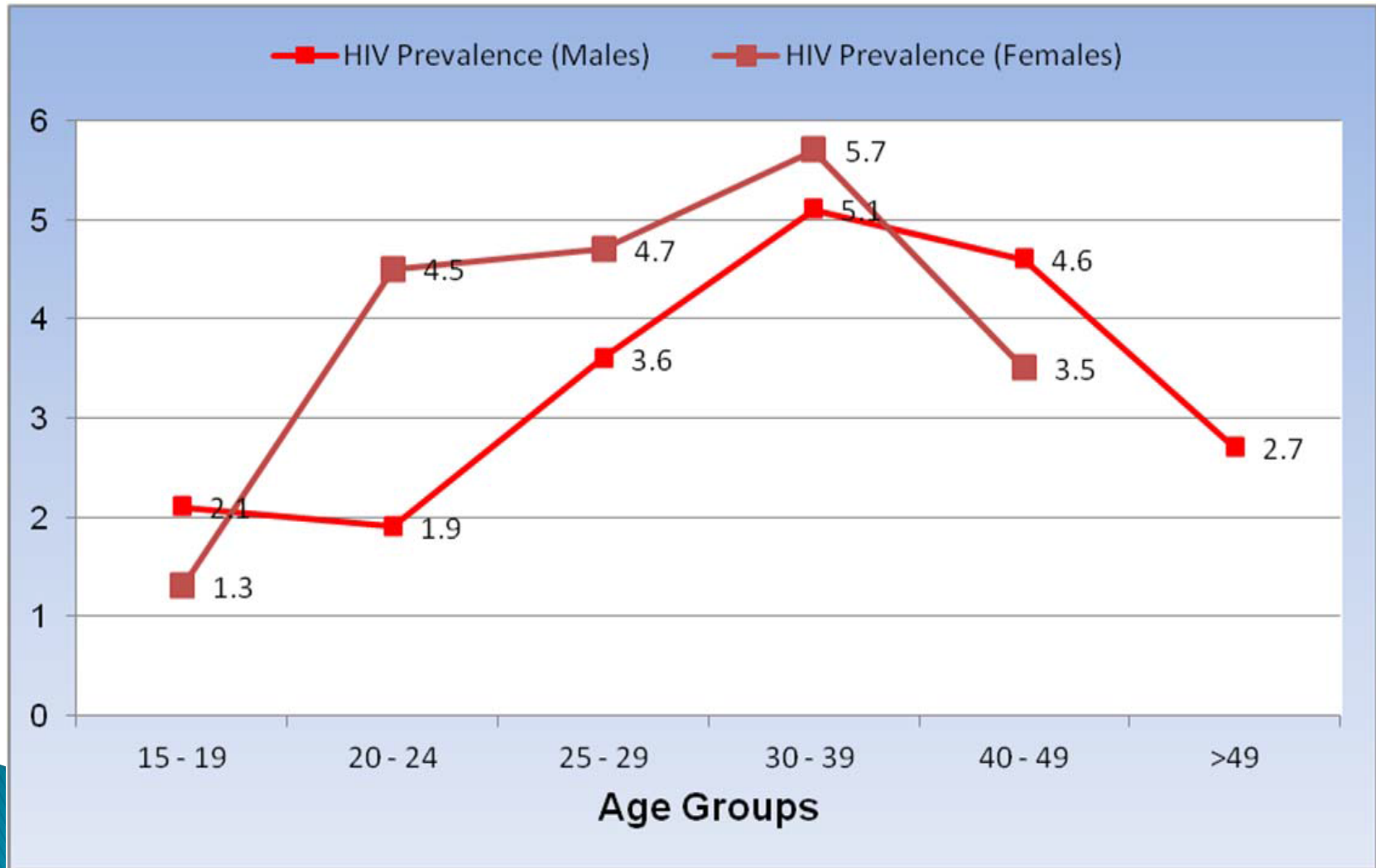
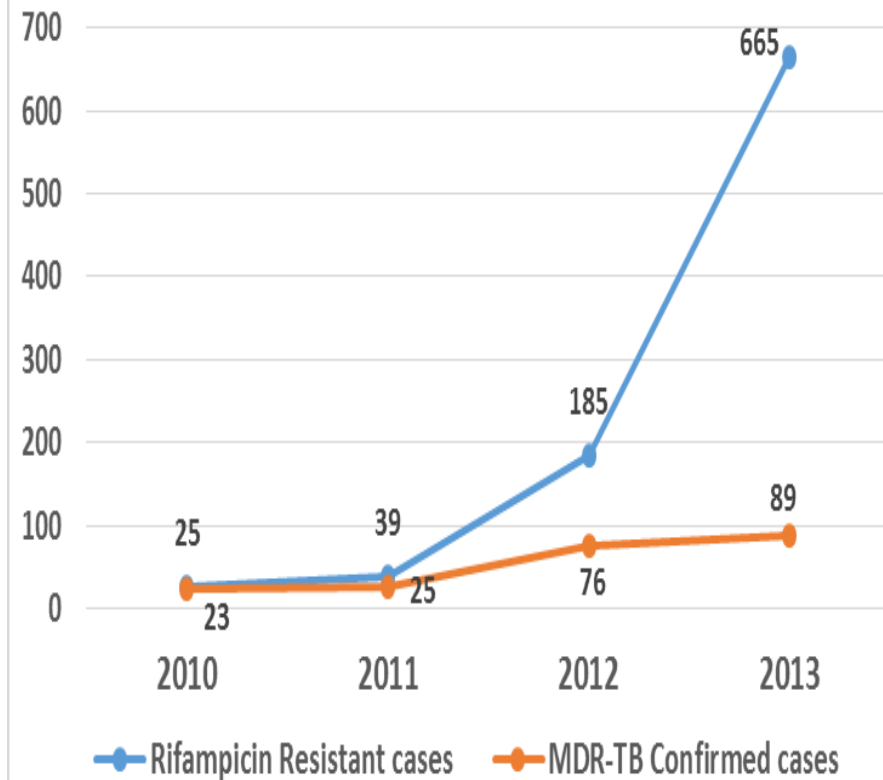A 6 YEAR TREND OF TB/HIV INDICATORS
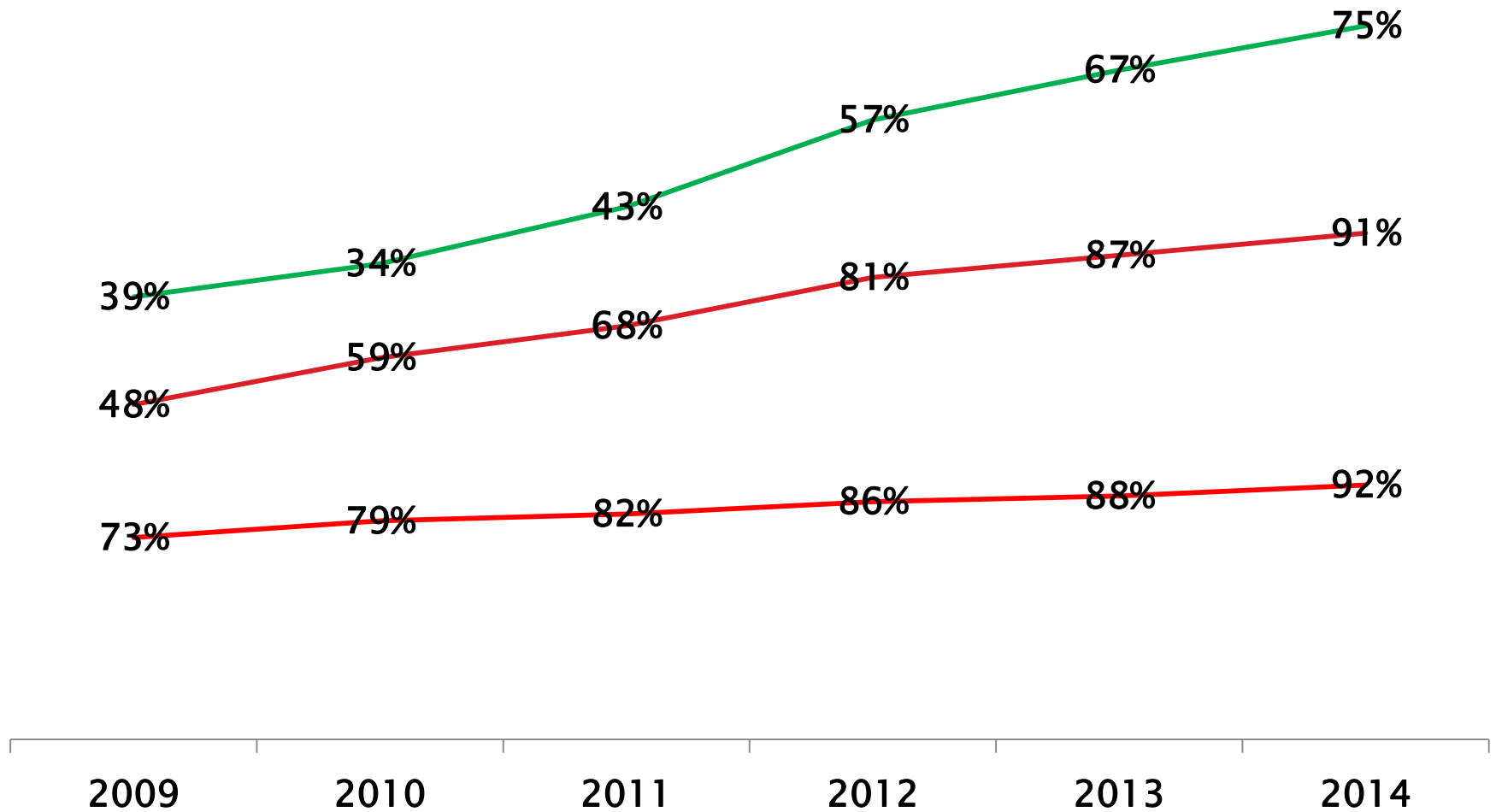
10 years trends in treatment outcome

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

2004 2005 2006 2007 2008 2009 2010 2011 2012 2013

Success rate   Defaulter rate   Death rate

73% 75% 75% 79% 82% 83% 84% 84% 86% 86%

MDR TB

A 4 YEAR TREND OF DR-TB SUSPECT SCREENED FROM 2010

Year	Value
2010	126
2011	129
2012	1,647
2013	10,410

A 4 YEAR TREND OF DR-TB CASES NOTIFIED

Year	Rifampicin Resistant cases	MDR-TB Confirmed cases
2010	25	23
2011	39	25
2012	185	76
2013	665	89

THE NATIONAL STRATEGIC PLAN

FOR

TUBERCULOSIS CONTROL

2015 - 2020

Towards Universal Access to Prevention,
Diagnosis and Treatment

National Tuberculosis and Leprosy Control Programme
Department of Public Health,
Federal Ministry of Health, Nigeria

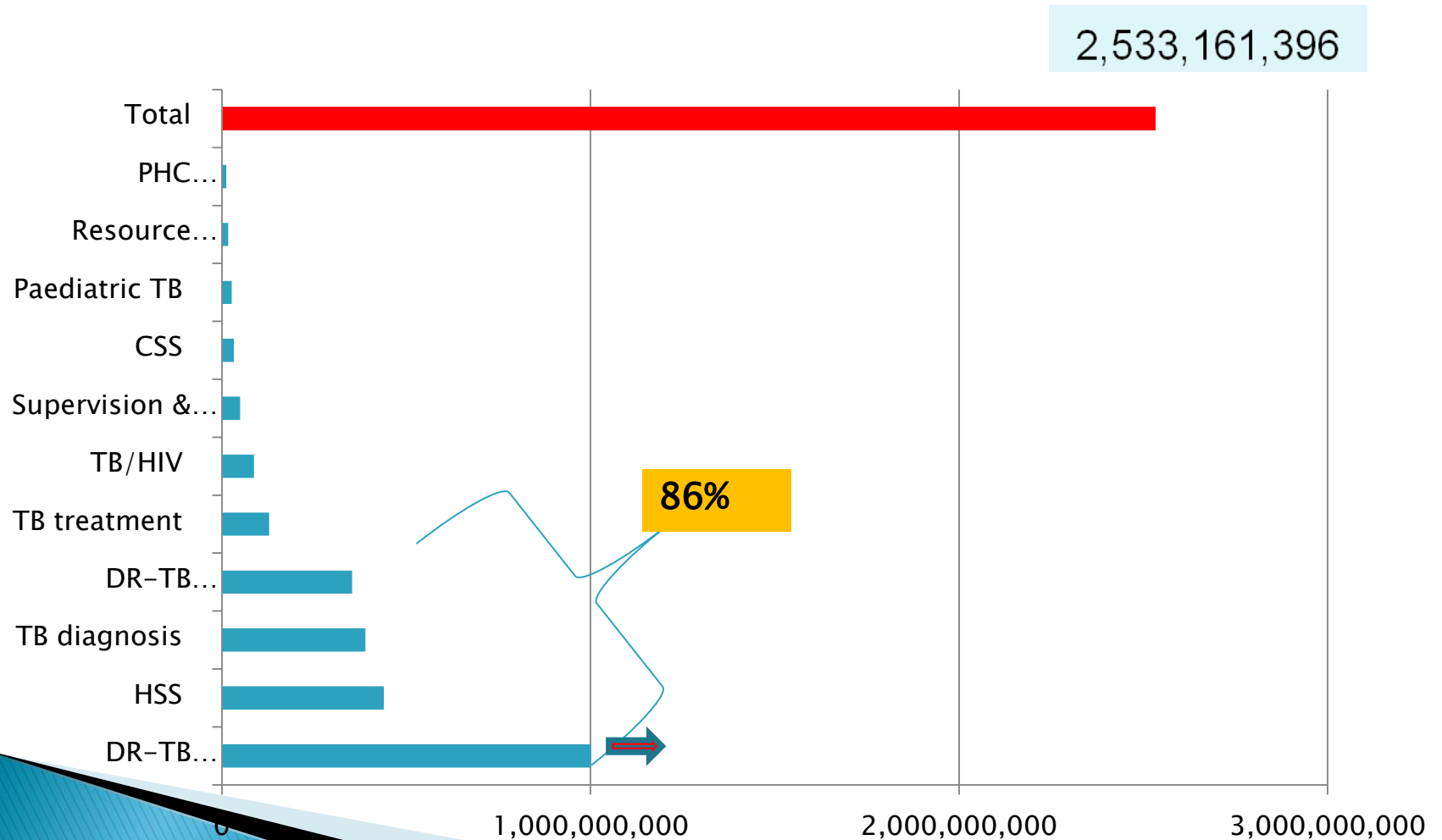**Estimated total TB cases versus target TB Case Notification (2015 – 2020)**

- Estimated TB cases (all forms)
- Target TB case notification (all forms)
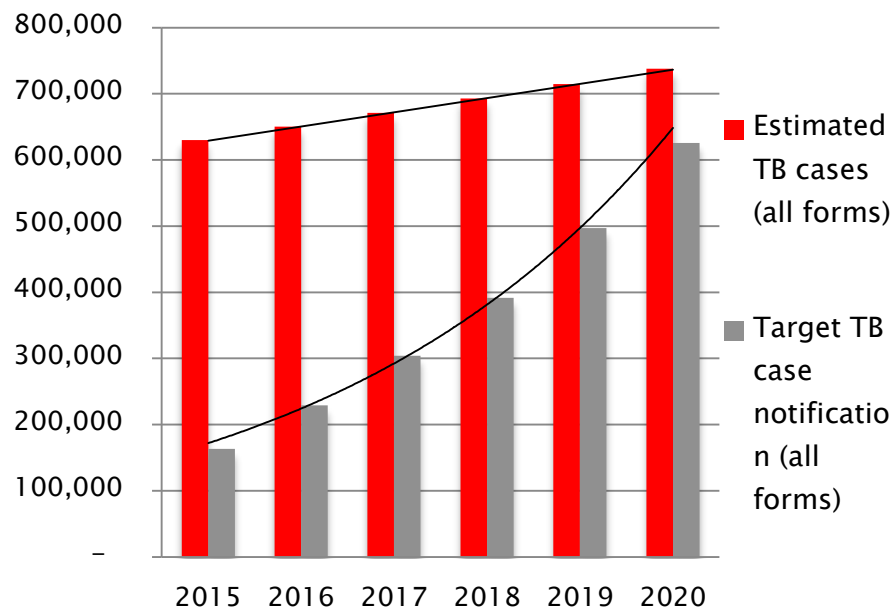
Estimated total MDR–TB cases versus target MDR–TB Case Notification (2015 – 2020)

- Estimated
- Target
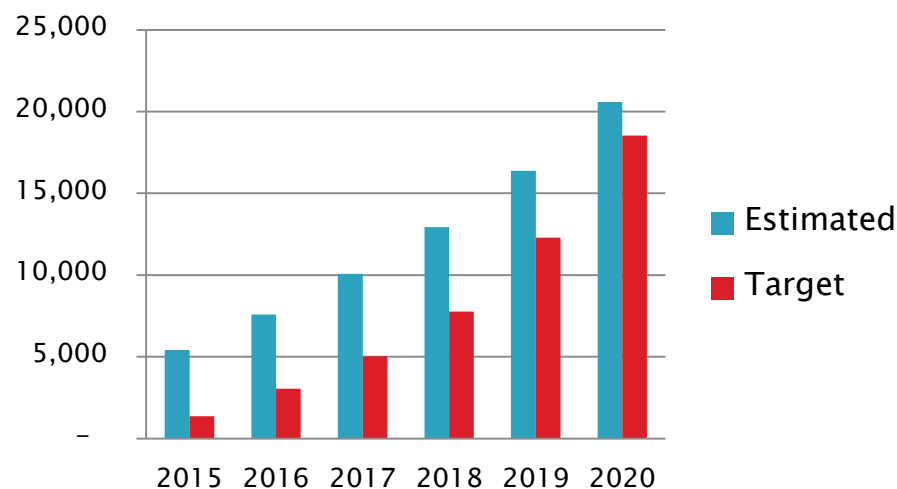
Cost of the NSP

Distribution of budget per activity for 6 years in US Dollars
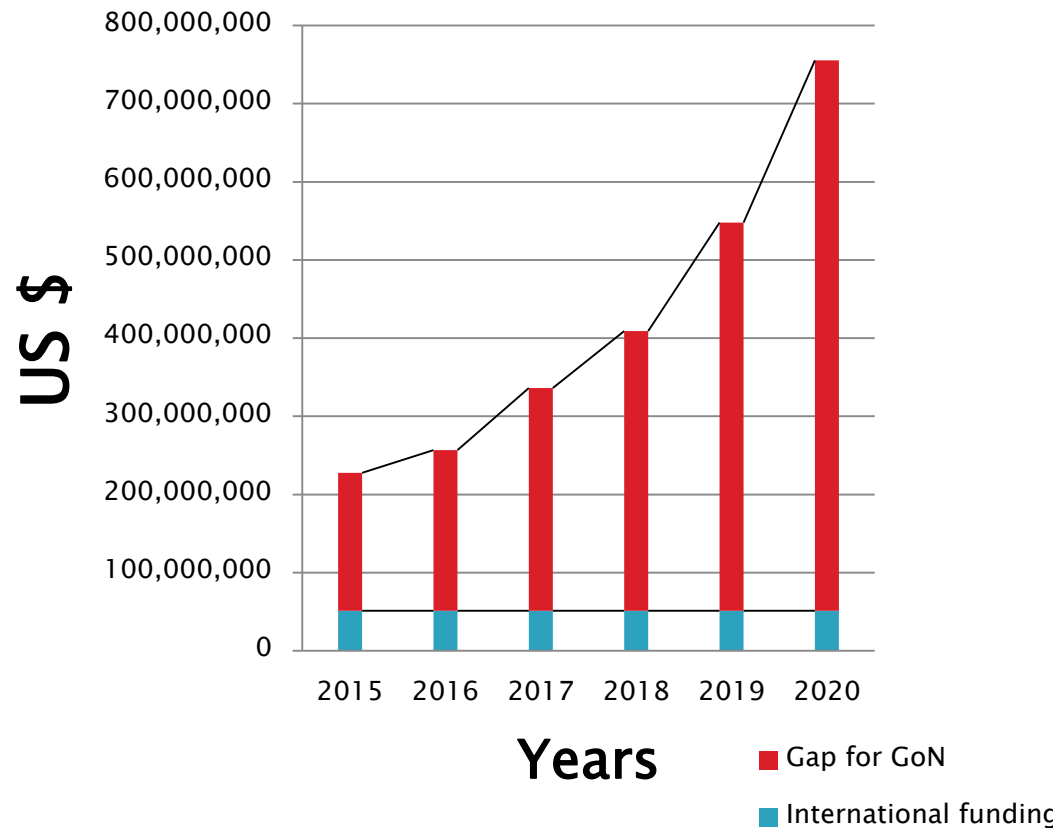

2,533,161,396

86%

Challenges

Funding
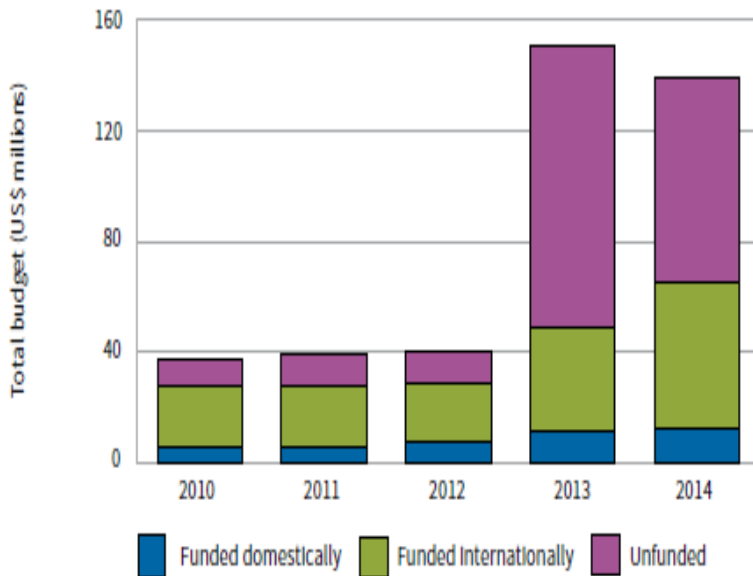
Trend of potential financial gap annually for 6 years

Challenges:

Inadequate government funding for the TB at all levels

Weak community involvement

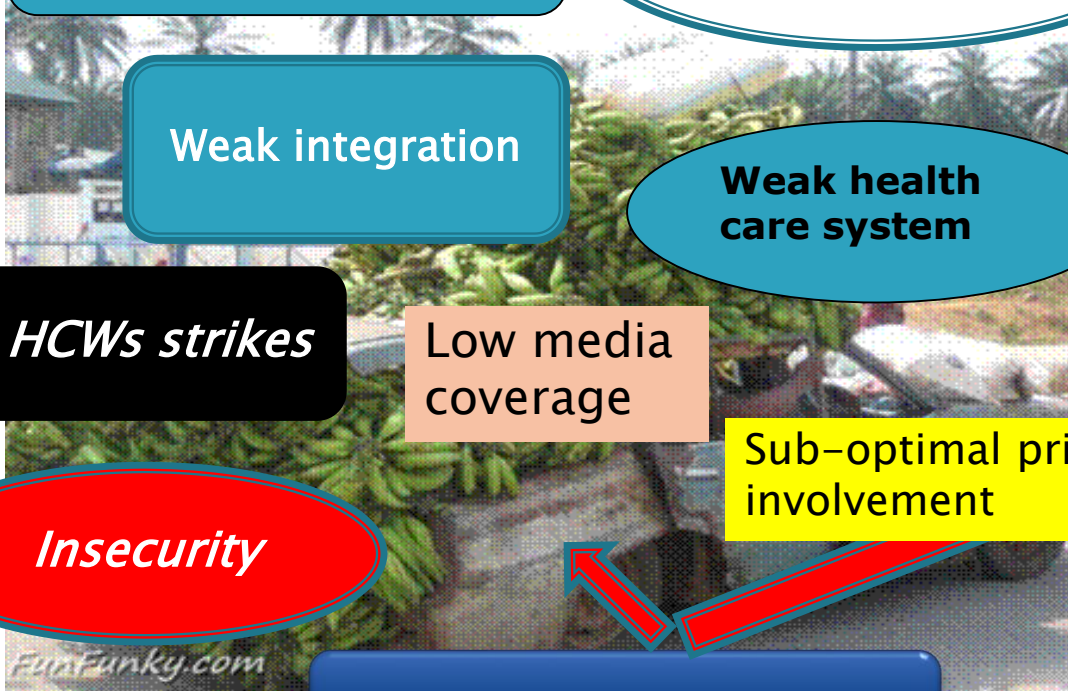Weak integration

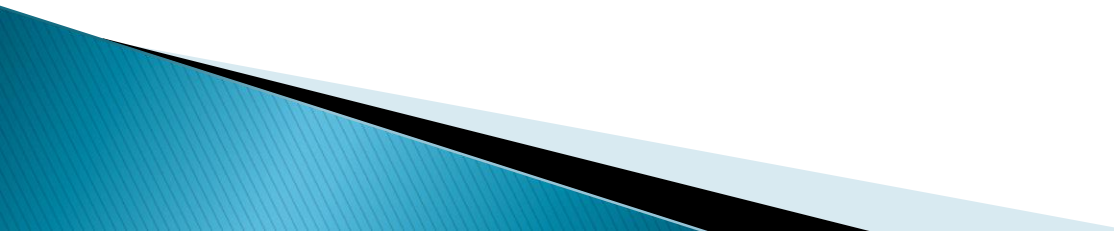**Weak health care system**

HCWs strikes

Low media coverage

Sub-optimal private involvement

Insecurity

Current health system

Way forward

- Health system strengthening
- Integration
- Community awareness & services
- Private sector engagement
- Partnership with the media
- Improve government commitment and financial support
- Establishment of 'Stop TB partnership' forum.

Thank you
Comments & questions