

Tuberculosis – ***An Overview***

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Slogan for World TB Day 2015

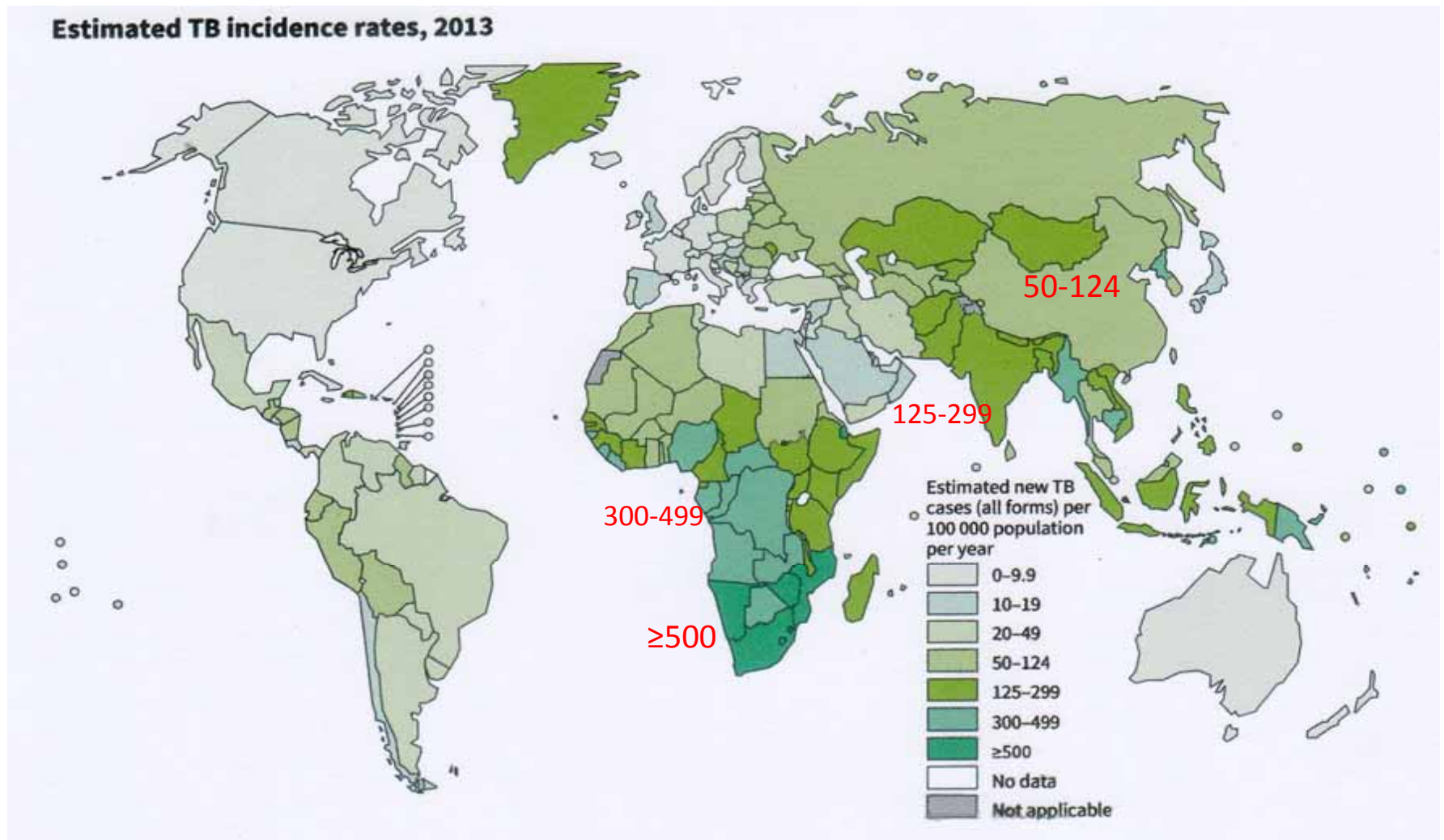
Reach the 3 million: Reach, Treat
and Cure everyone

Burden of TB: 2013*

- Estimated 9 million people developed TB:
 - 3.3 million women
 - 1.1 million TB/HIV,
 - 550 000 children
- 1.5 million deaths – 510 000 women
 - 360 000 HIV+
- Estimated 480 000 MDR-TB
 - Estimated 210 000 deaths
- 6.1 million reported TB cases to WHO
- Gap of 3 million

* WHO: Global TB Report 2014

Estimated TB Incidence Rates 2013



High-burden countries (22)

- 82% of all cases

- Afghanistan
- Bangladesh
- Brazil
- Cambodia
- China
- The Democratic Republic of the Congo
- Ethiopia
- India
- Indonesia
- Kenya
- Mozambique
- Myanmar
- Nigeria
- Pakistan
- The Philippines
- The Russian Federation
- South Africa
- Thailand
- Uganda
- The United Republic of Tanzania
- Viet Nam
- Zimbabwe.

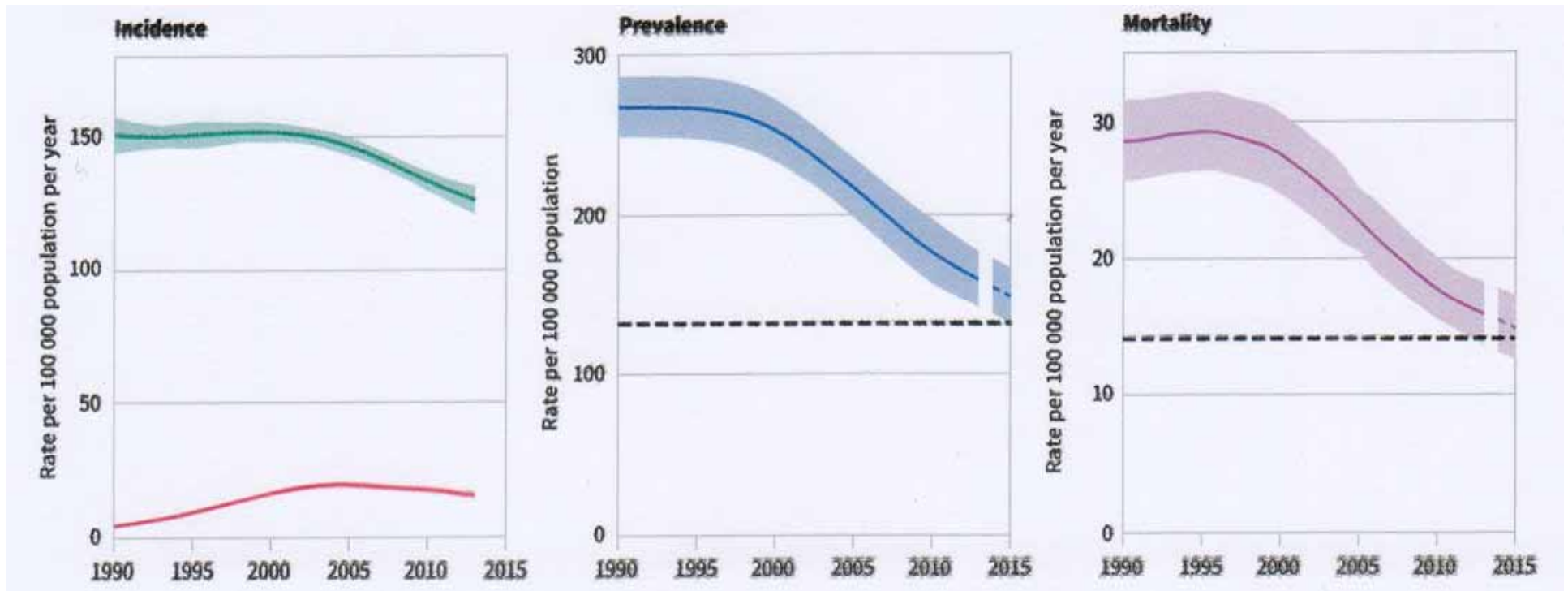
Top 6 HBCs with highest Incident Cases (2013)

- India: 2.0 – 2.3 M (24%)
 - China: 0.9 – 1.1 M (11%)
 - Nigeria: 0.3 – 0.9 M
 - Pakistan: 0.3 – 0.7 M
 - S. Africa: 0.4 – 0.5 M
 - Indonesia: 0.4 - 0.5 M
- } 35% of all cases

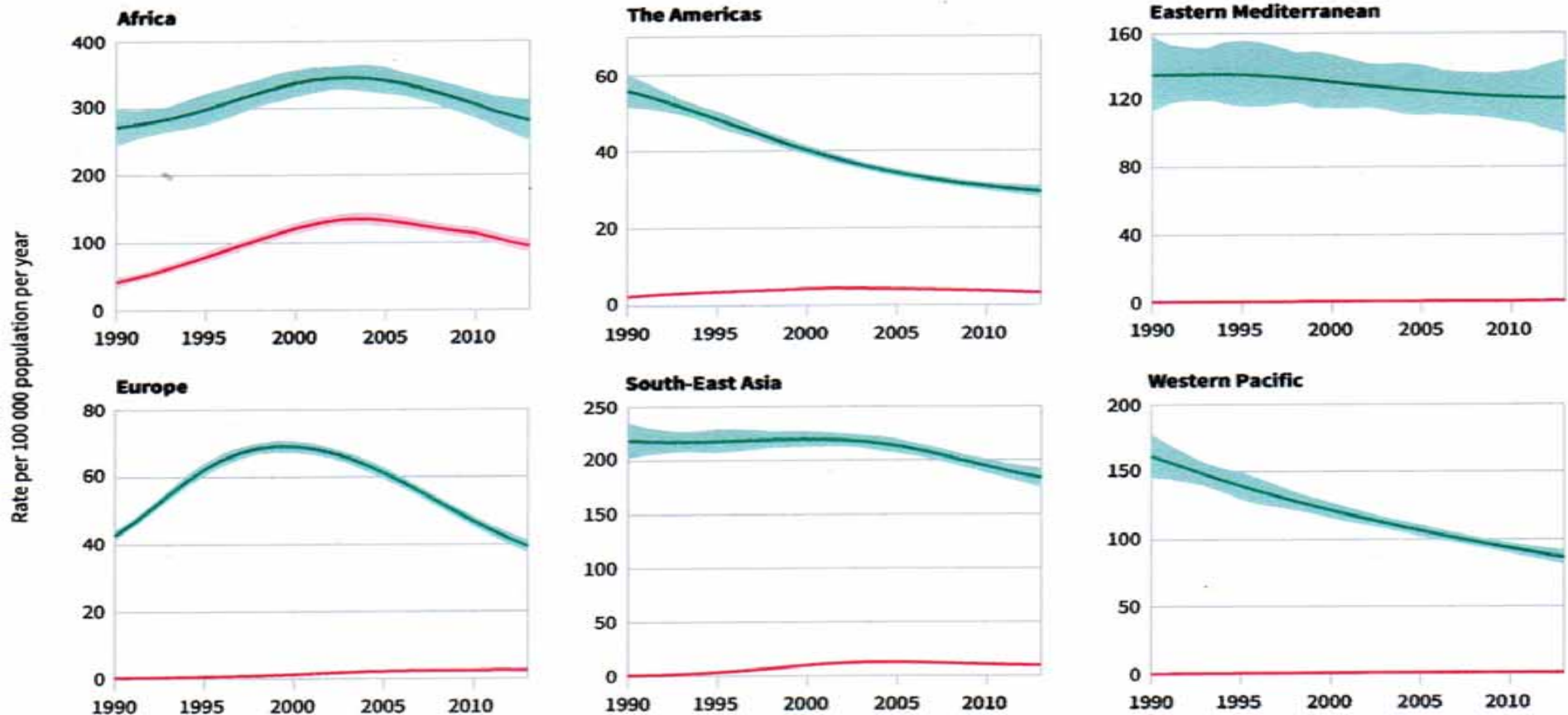
Global Targets

- Goals set to reduce and eliminate TB:
 - **MDG Target 6c:** To halt and begin to reverse the incidence of TB by 2015
 - **Stop TB partnership targets:**
 - By 2015:** To halve prevalence and death rates due to TB from the 1990 baseline
 - By 2050:** To reduce global incidence of active TB to < 1 case per 1 million pop per year

Global Trends in estimated rates of TB Incidence, Prevalence and Mortality

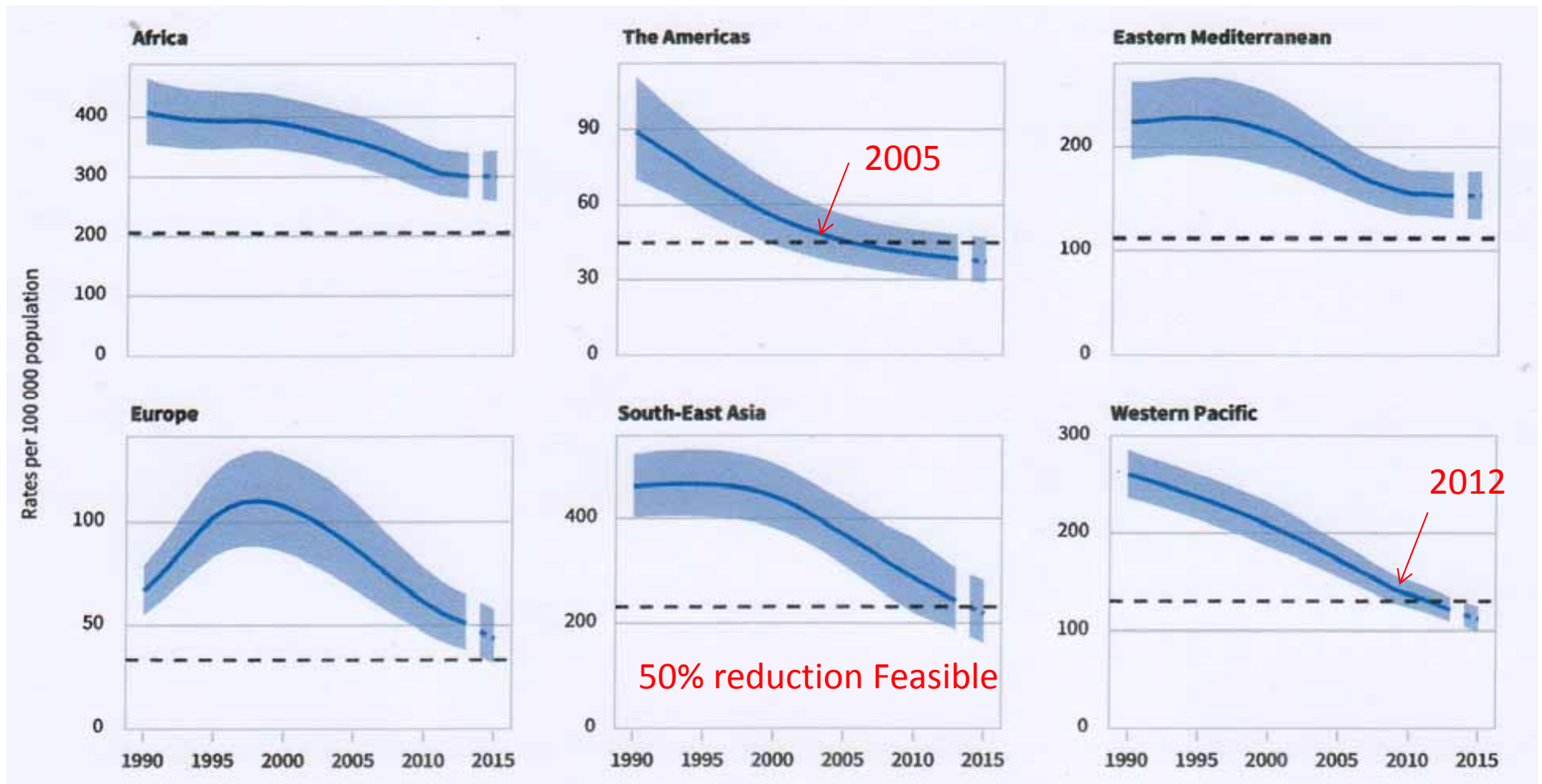


Trends in Estimated TB Incidence Rates by WHO Regions (1990-2013)

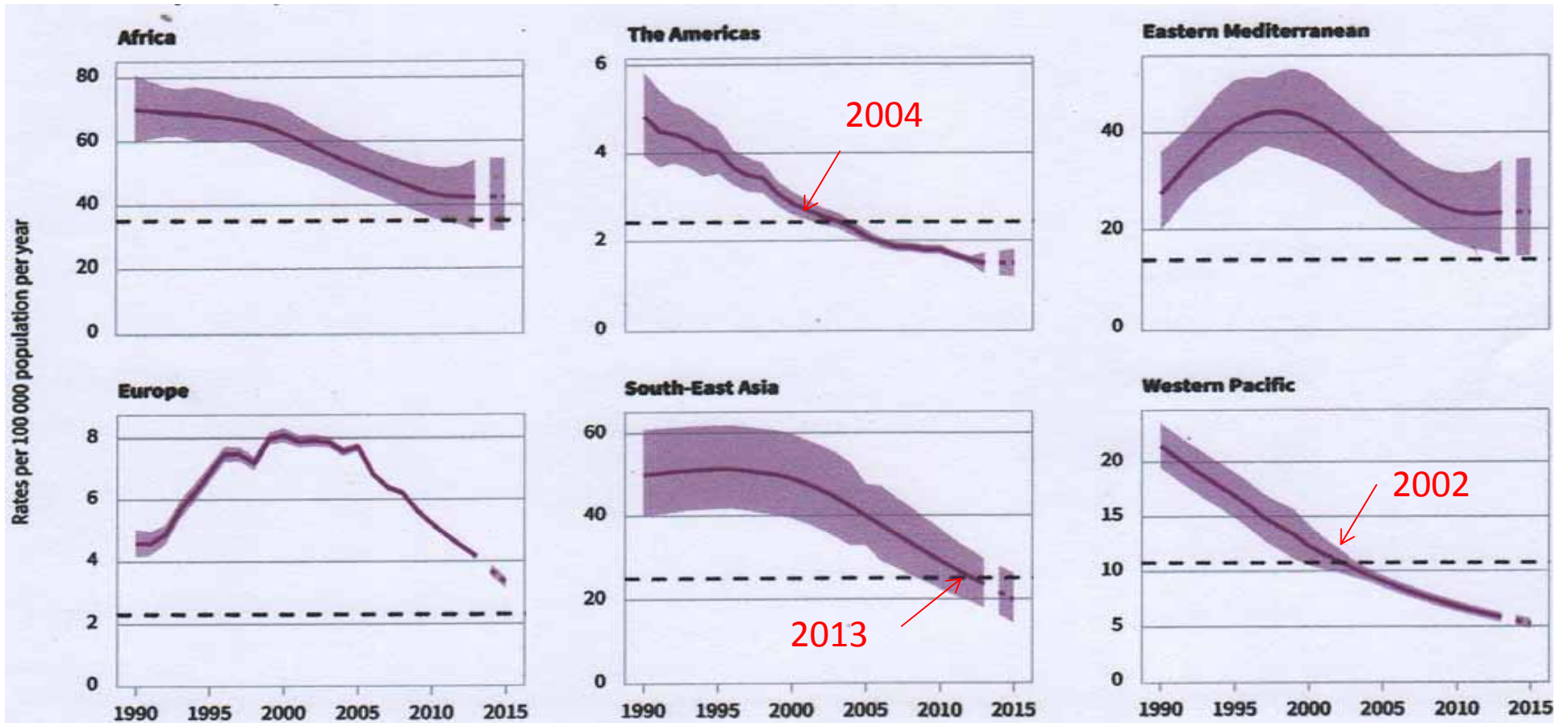


- Incidence rates falling in all regions; fastest in European region and slowest in Eastern Mediterranean and S.E. Asia

Trends in Estimated TB Prevalence Rates by WHO Regions (1990-2013)



Trends in Estimated TB Mortality Rates by WHO Regions (1990-2013)



a The width of an uncertainty band narrows as the proportion of regional mortality estimated using vital registration data increases or the quality and completeness of the vital registration data improves.

TB in Mauritius

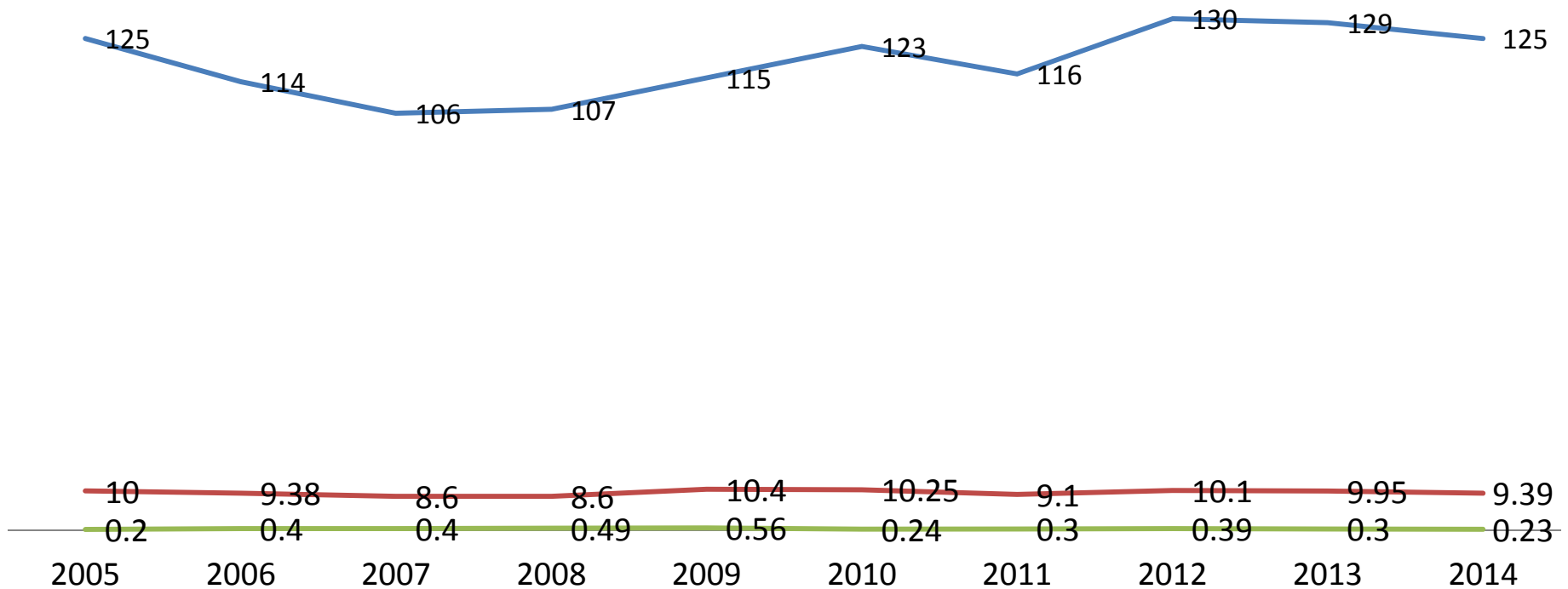
Burden of TB in Mauritius

In 2014:

- Total number of TB cases notified: 125
- Incidence rate: 10.4 cases per 100,000 pop
- No. of TB/HIV co-infection cases: 14
- No of TB deaths: 3
- Mortality Rate: 0.23/100 000 pop

Trends in Total no. of TB cases, Incidence Rate and Mortality Rate (2005-2014)

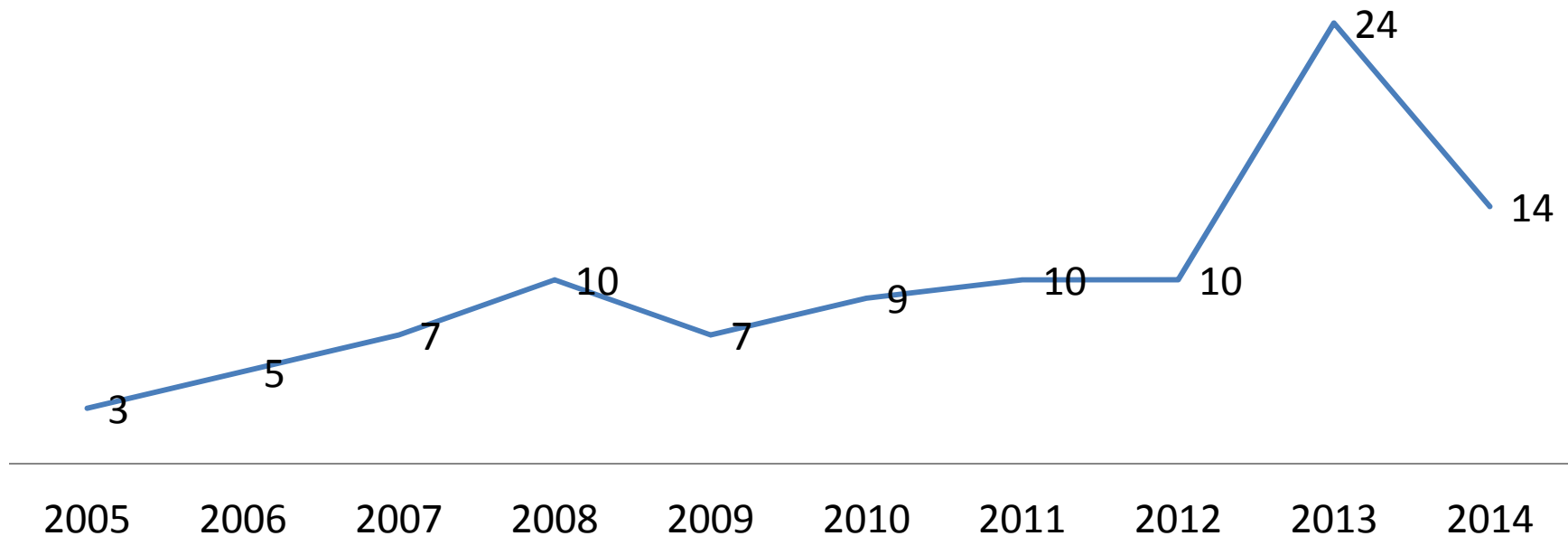
— No of Notified TB cases — Incidence of TB — Mortality/100,000 pop.



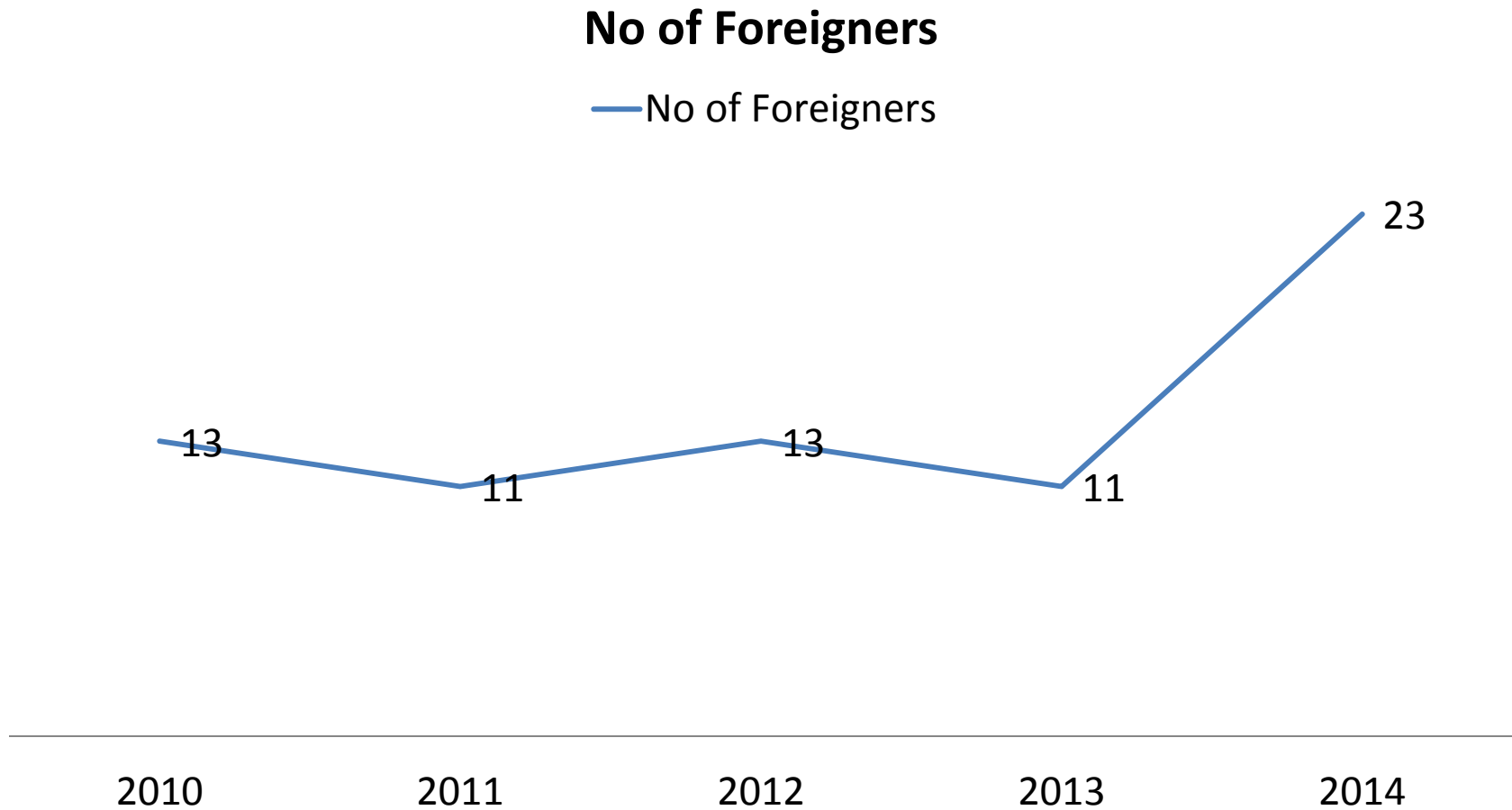
Trend in No. of TB/HIV cases

No. of TB/HIV cases

— No. of TB/HIV cases

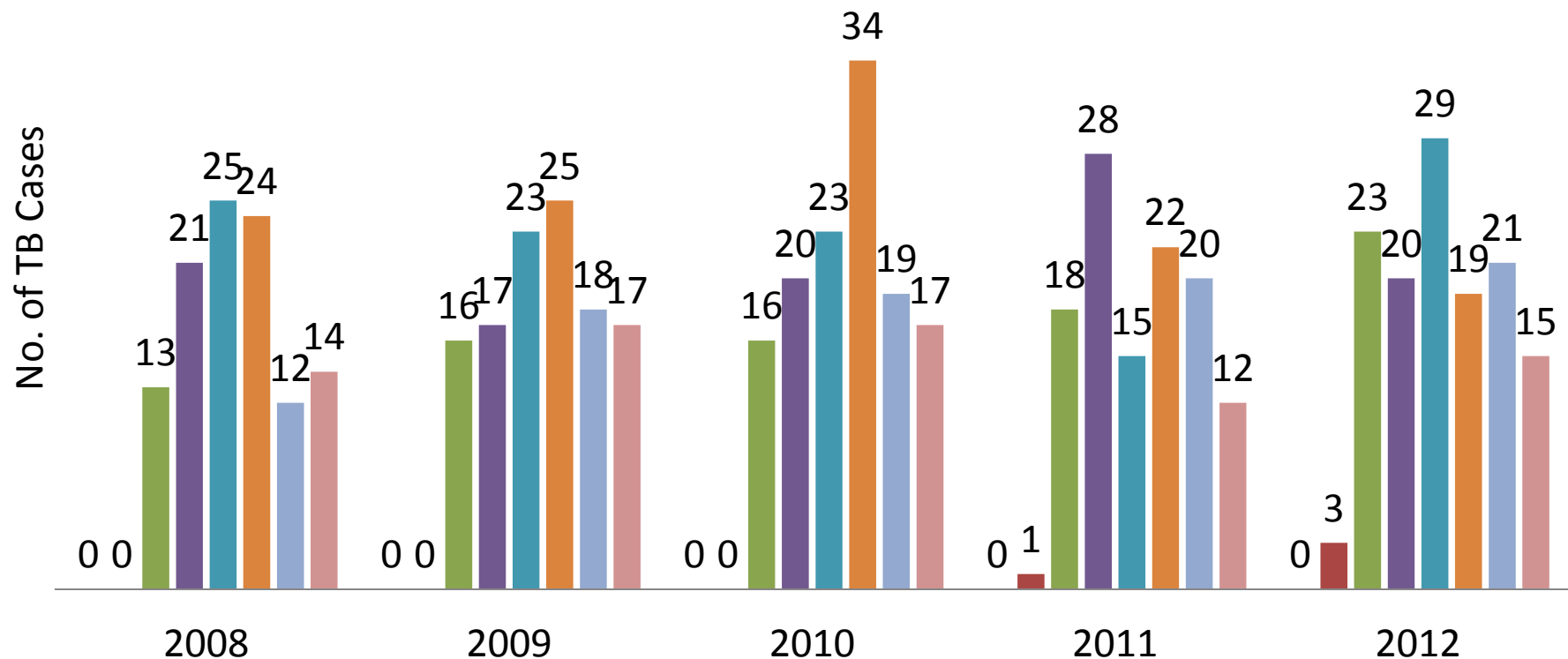


Trend of foreigners with TB



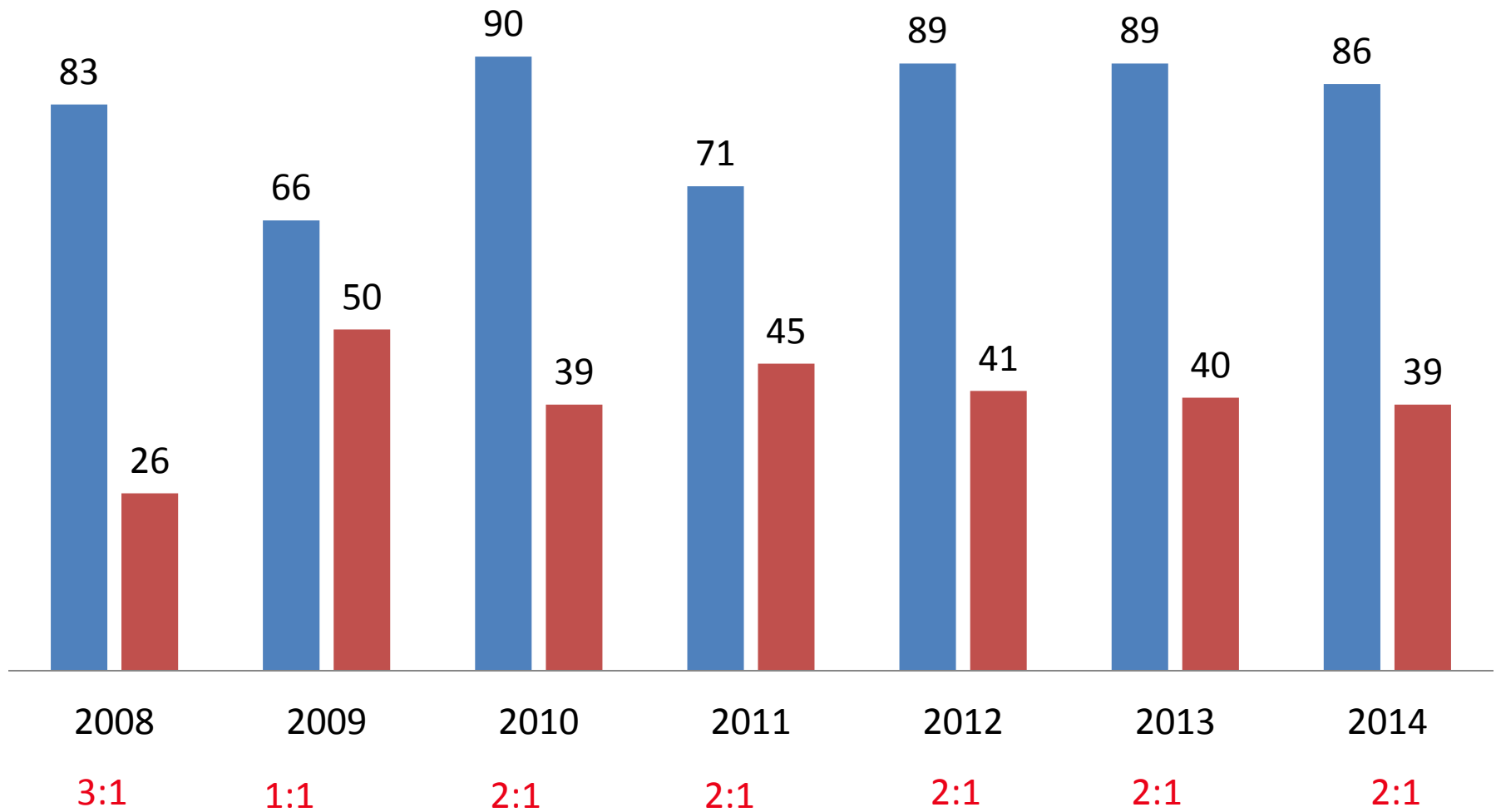
Age distribution of TB cases, 2008-2012

■ 0-4y ■ 5-14y ■ 15-24y ■ 25-34y ■ 35-44y ■ 45-54y ■ 55-64y ■ ≥65y

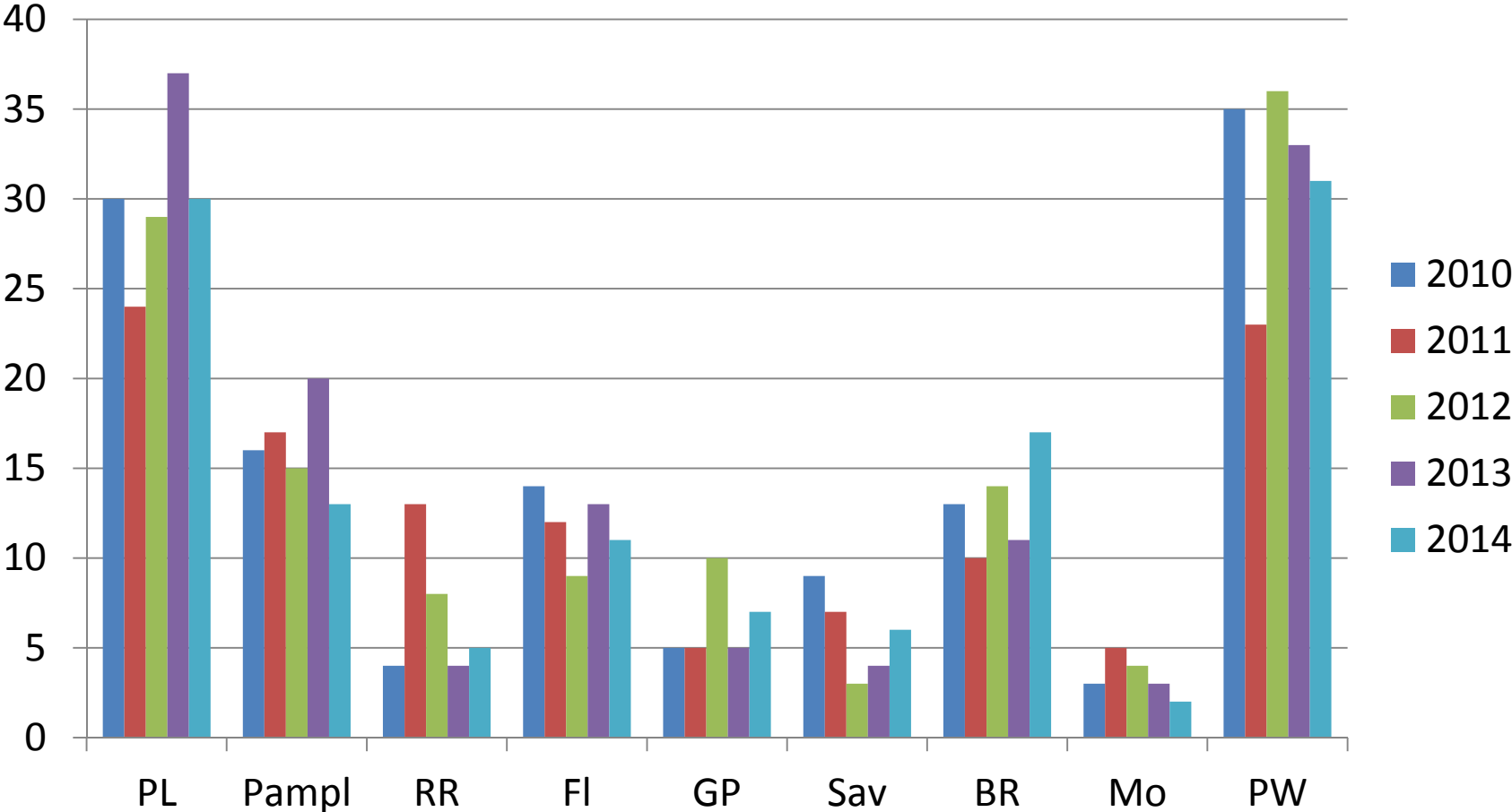


Sex distribution of TB Cases, 2008-2012

■ Male ■ Female



Distribution of TB cases District-wise (2010-2014)



Who are at Highest Risk for Exposure to and Infection with TB?

- Close contacts
- People who frequently travel to HBCs
- Residents and employees of congregate settings (prisons, shelters for the homeless)
- HCWs

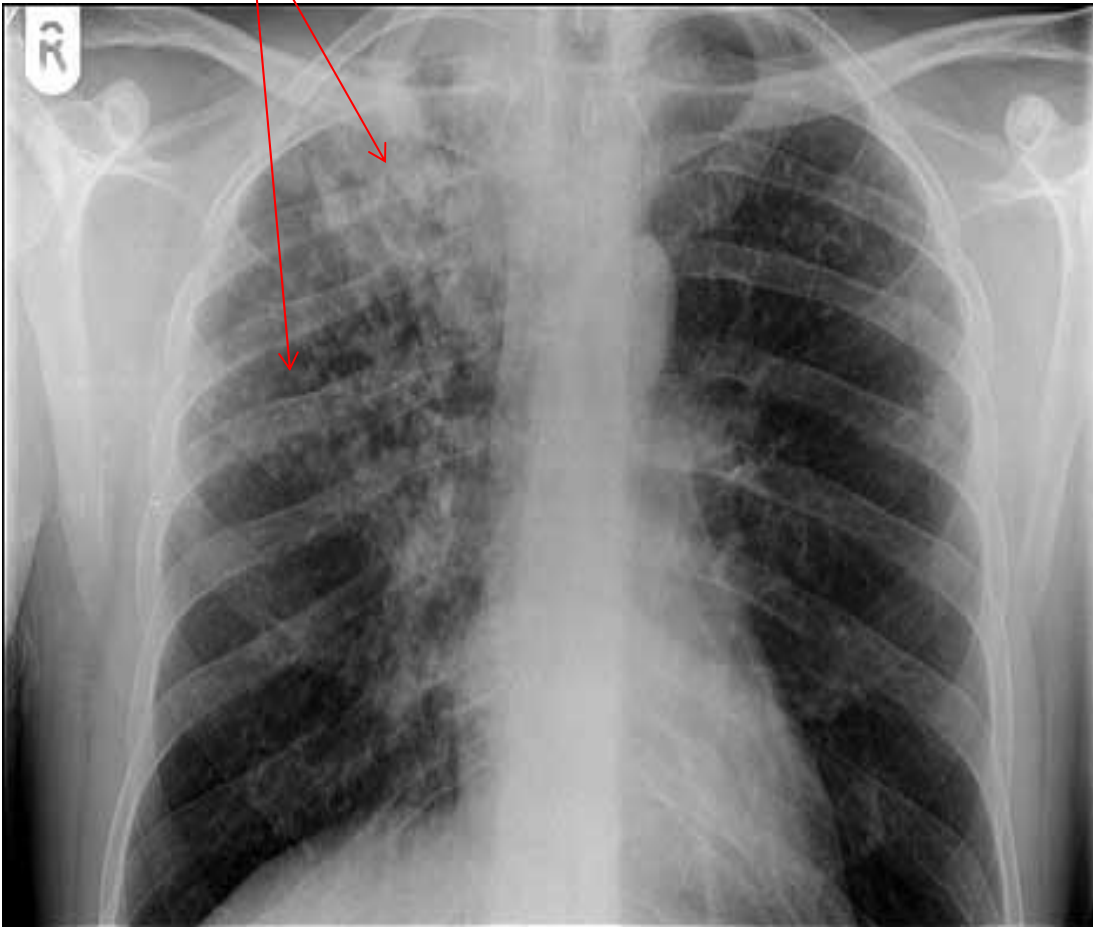
Persons whose condition is at high risk for progression from LTBI to TB disease

- HIV +
- Persons infected with *M. tuberculosis* within previous 2 y
- Infants, children <4 y, elderly
- Persons with following clinical conditions:
 - Silicosis
 - DM
 - CRF
 - Leukemias, Lymphomas
 - Carcinoma of head, neck, lung
 - Prolonged corticosteroid use
 - Immunosuppressive therapy
 - Organ transplant
- Persons with h/o untreated or inadequately treated TB, or whose CXR findings consistent with previous TB dis

Investigations

CXR – PA

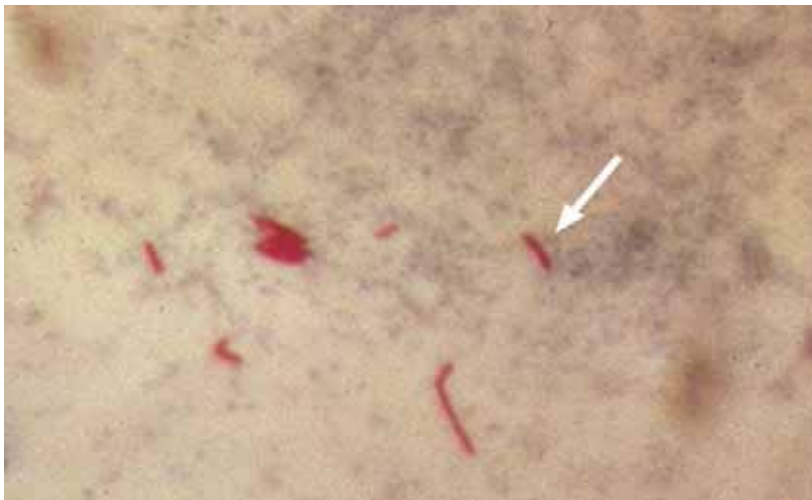
Patchy infiltrates



- Consolidation involving apices
- Cavities
- Enlarged LNs
- Effusion

Sputum Examination

Smear for AFB



Colonies of Mycobacteria

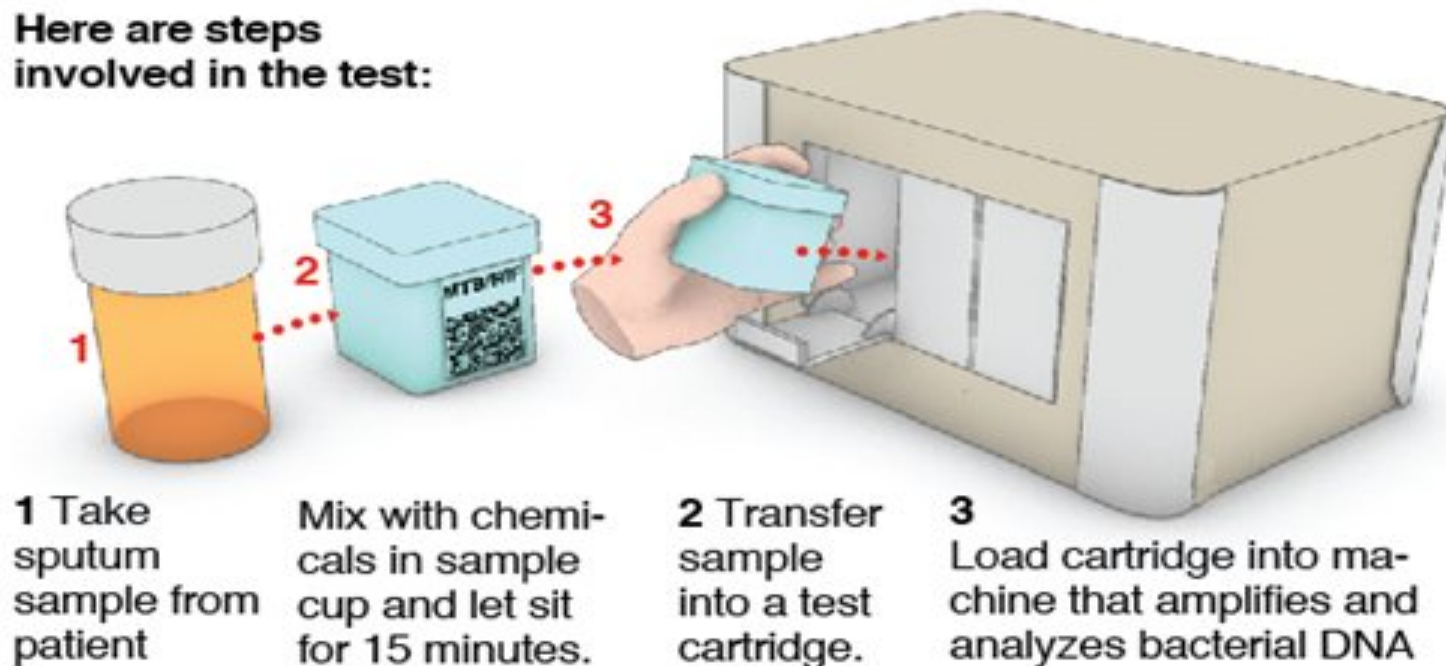


Gene Xpert MTB/RIF test

New TB Testing

A new test can reveal in less than two hours, with very high accuracy, whether someone has tuberculosis and if it's resistant to the main drug for treating it.

Here are steps involved in the test:



Results obtained from Sir Edgar Laurent Lab from 2013 till date

| Report | Number of cases |
|--|-----------------|
| MTB detected High ; Rif resistance Detected | 5 |
| MTB detected Low ; Rif resistance Detected | 2 |
| MTB detected Medium ; Rif resistance Detected | 2 |
| MTB detected Very Low ; Rif resistance Detected | 1 |
| MTB detected High ; Rif resistance Not Detected | 160 |
| MTB detected Very Low ; Rif resistance Indeterminate | 1 |
| MTB detected Low ; Rif resistance Not Detected | 53 |
| MTB detected Medium ; Rif resistance Not Detected | 128 |
| MTB detected Very Low ; Rif resistance Not Detected | 19 |
| MTB Not Detected | 243 |
| No result | 11 |
| Error | 17 |
| Total | 642 |

Mantoux test

- Skin test using 0.1ml of PPD preparation injected intradermally on the anterior aspect of the forearm.
- Reading after 48-72 hrs.
- Diameter of induration measured
- A reading of up to 10 mm: N
- < 5mm: Neg. reaction; > 10mm: Positive; > 20mm: high chance of active TB



Treatment

Outcome without Treatment

- High mortality
- Studies among ss+, HIV-: 70% died within 10 y
- Ss-, culture + : 20% died within 10 y
- Cure rate with ATT > 90%

WHO DOTS protocol



- First-line drugs: 2(HRZE) + 4(HR)
- Sputum analysis at 4, 6, 8 wks
- Serial CXR
- Sensitivity Report for Anti-TB drugs available at 4 months: MDR-TB?

Take Home Message

- TB is a treatable disease
- Diagnose TB early:
 - To prevent aggravation of TB
 - To prevent further spread
- Investigate for TB in any Pt with fever & cough for > 2 wks

Thank You