

# TB World Day 2014. PAHO/WHO

## Social determinants and tuberculosis: the Brazilian experience

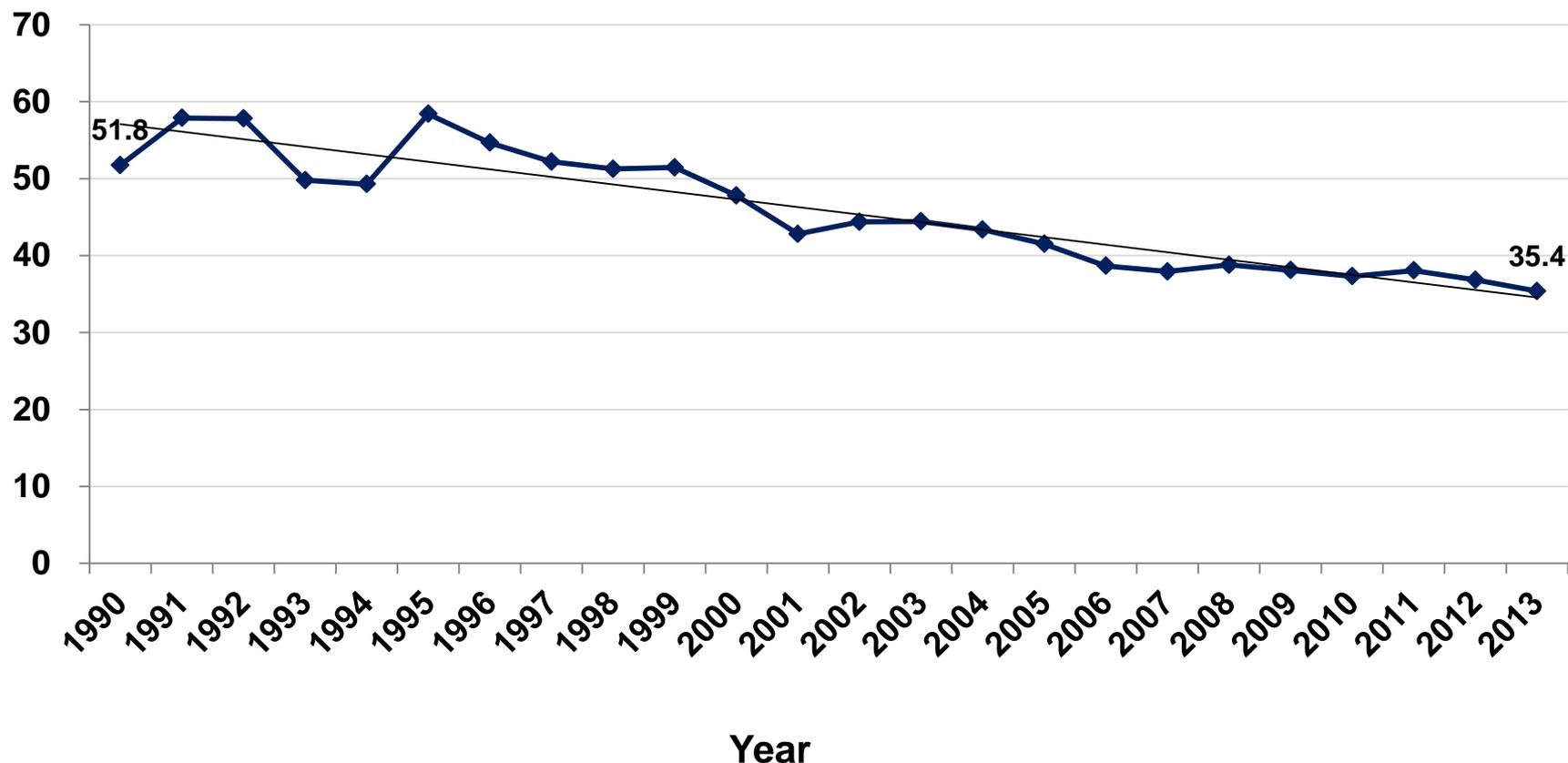
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Vice Minister of Health Surveillance  
Ministry of Health - Brazil

# TB in Brazil

- **71** thousand new TB cases reported in 2013
- **4,4** thousand deaths in 2012
- **16th** country in burden of disease (one of the 22 high burden countries)
- **111th** country in TB incidence rate
- **4th** cause of death among infectious disease
- **1st** cause of death among infectious diseases defined in PLHA

# TB incidence rate. Brazil, 1990 a 2013\*

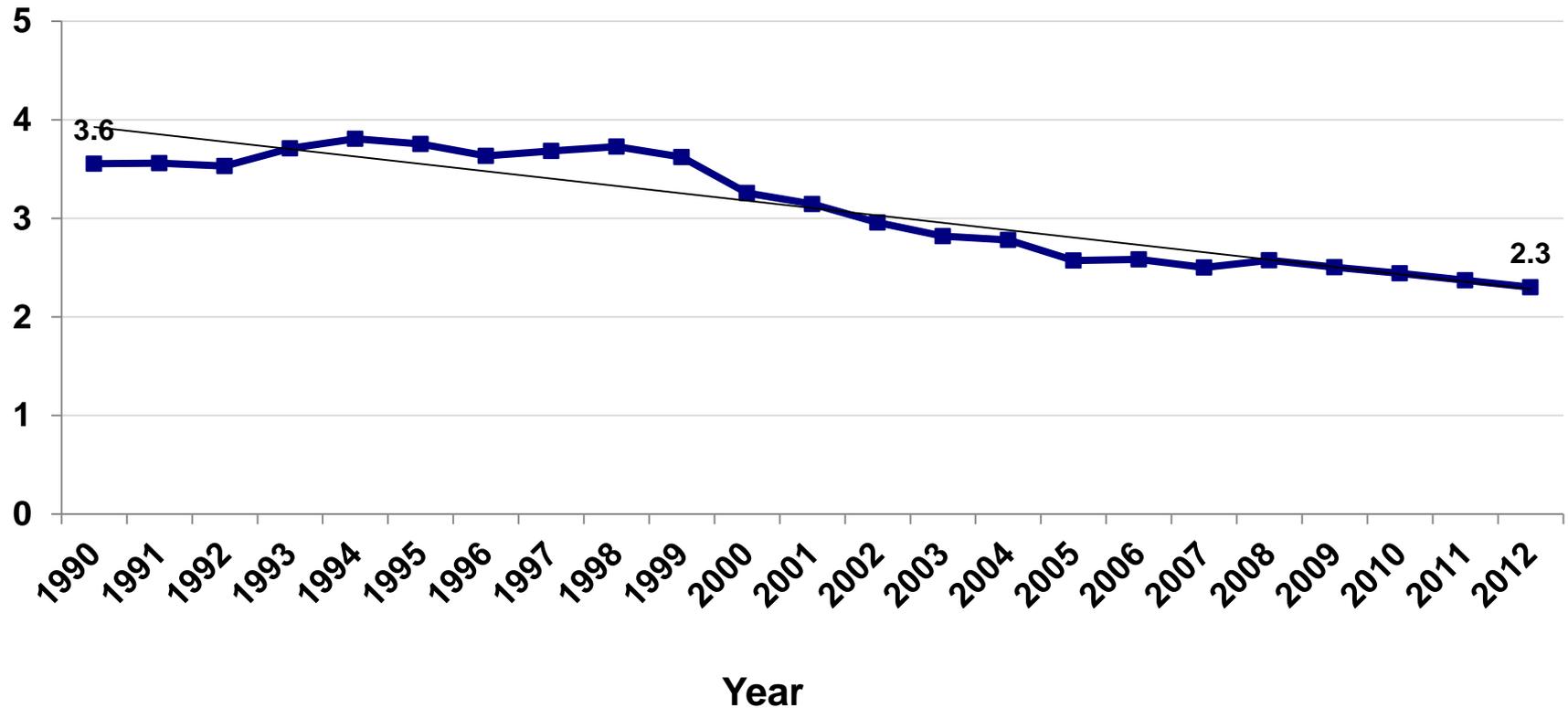
By 100.000 inhabit.



Source: MS/Sinan and IBGE. \* preliminary data

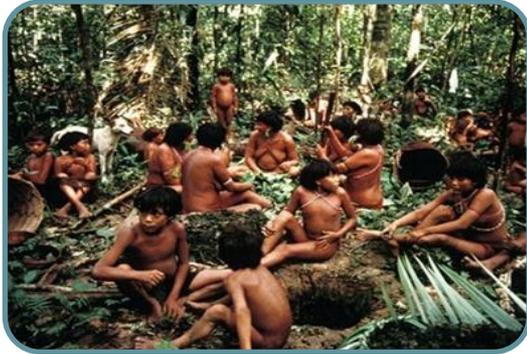
# TB mortality rate. Brazil, 1990 a 2012\*

By 100.000 inhabit.



Source: MS/SIM and IBGE. \* preliminary data

# Vulnerable populations: relative risk



Indigenous people: 3 times



Prisoners: 28 times

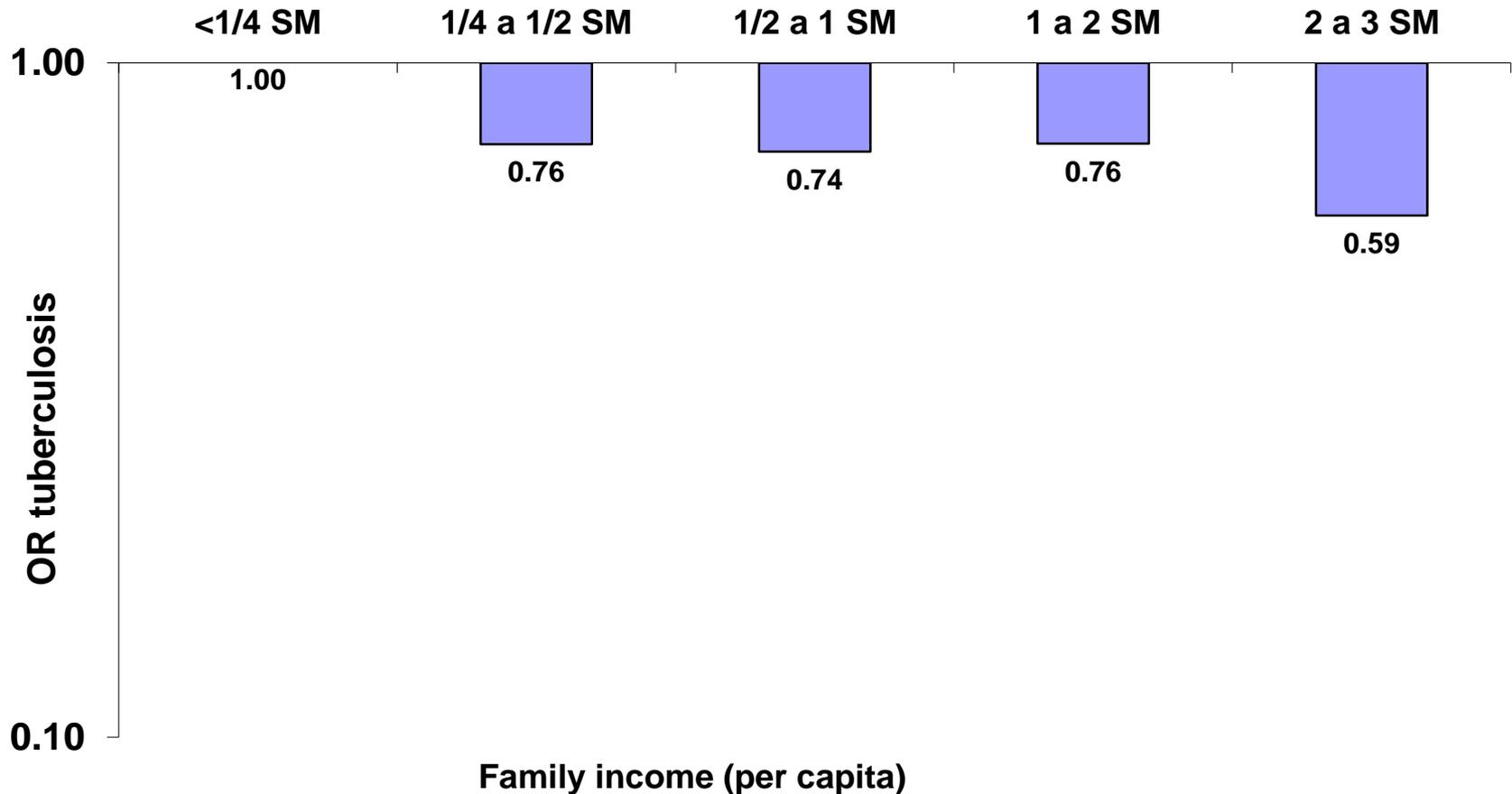


PLWH: 35 times



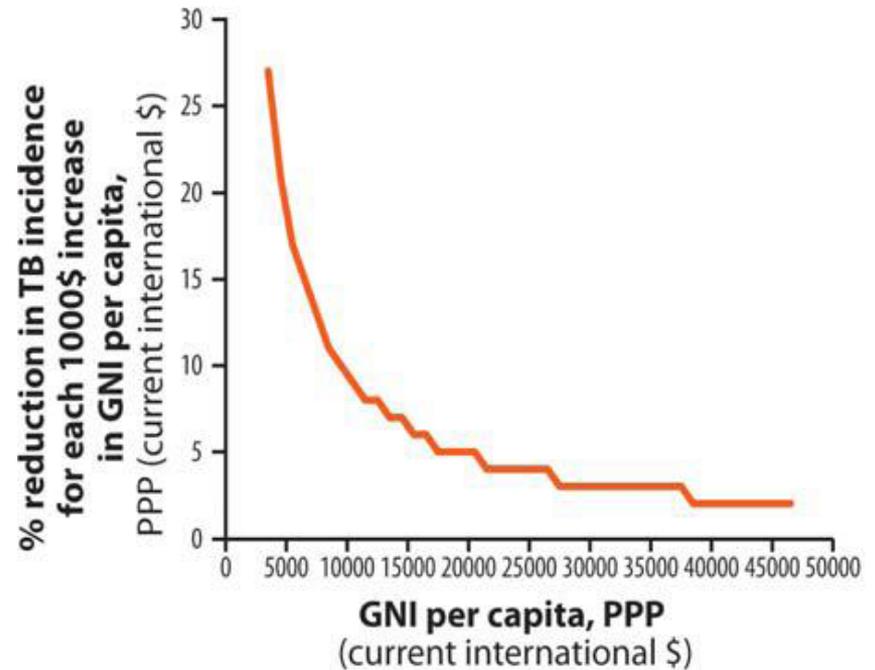
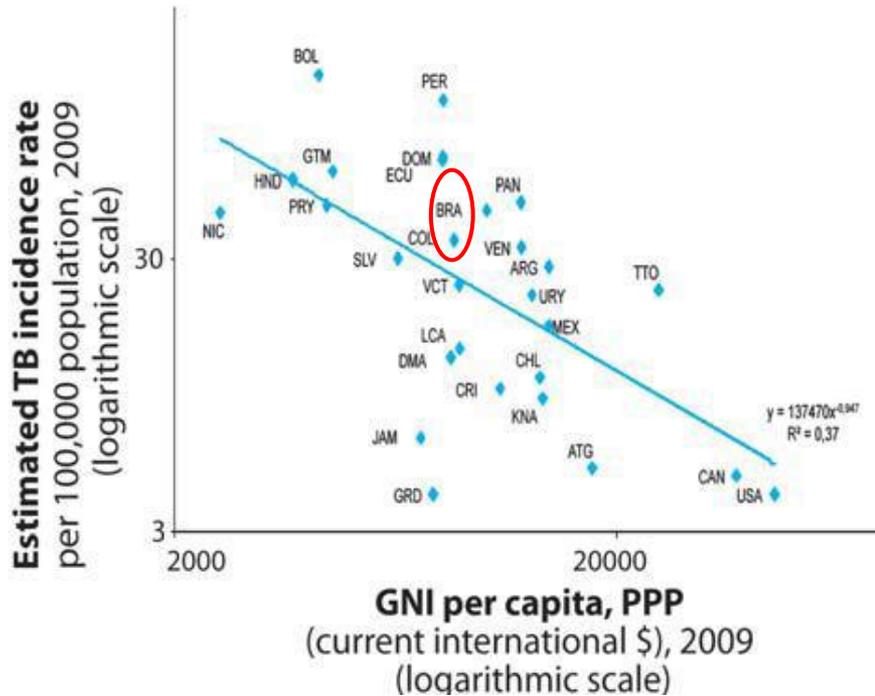
Homeless: 44 times\*

# Relationship between family income, in minimum wages (SM) per capita, and TB occurrence. Brazil, 2008



Source: PNAD, 2008. Minimum Wage = R\$415 (US\$ 225)

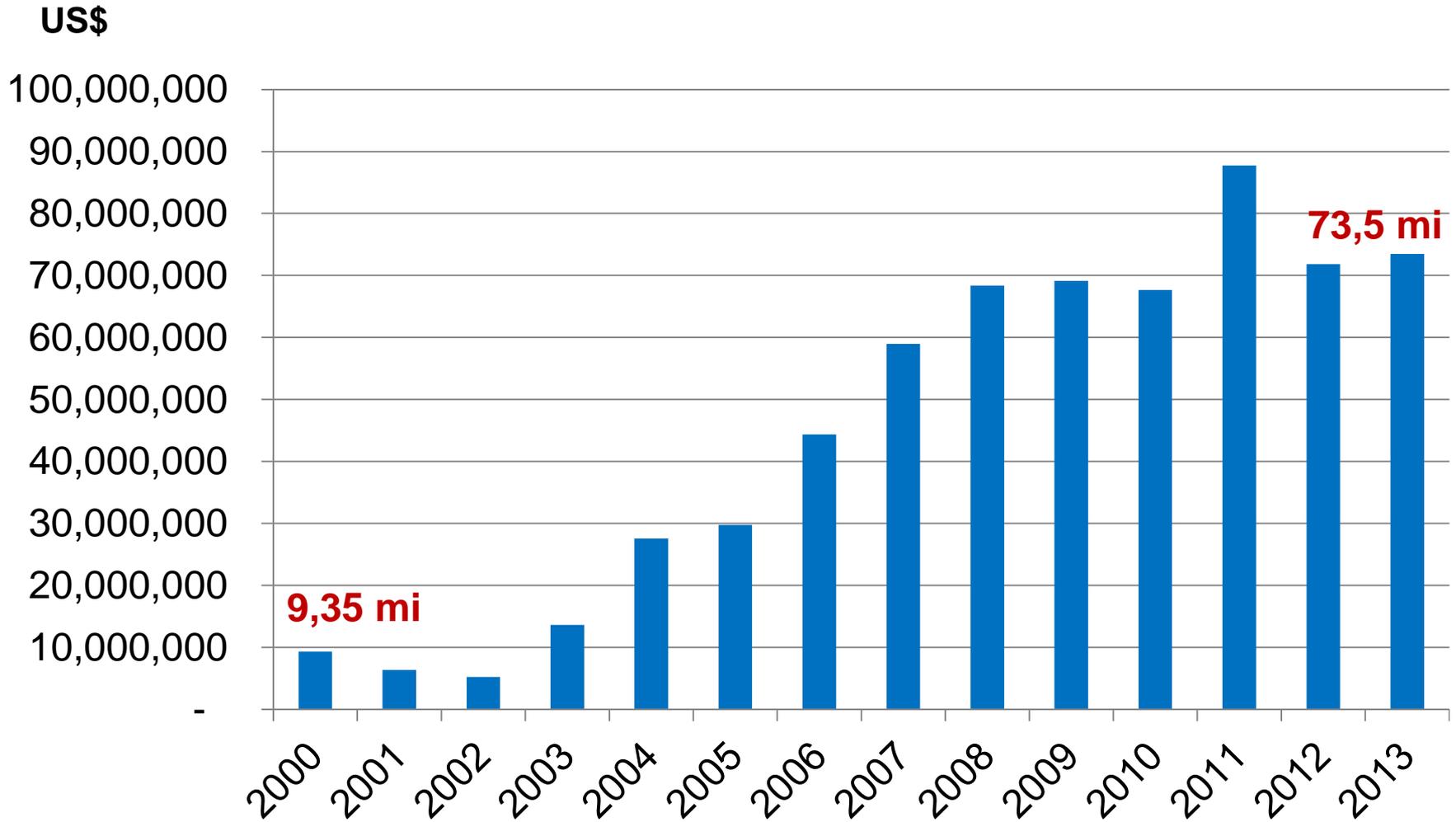
## Relation between GNI per capita, PPP (current international \$) and estimated TB incidence rate per 100,000 population (left), and expected reduction in TB incidence by increase in GNI per capita (right), 2009



\*USA - United States of America; CAN - Canada; TTO - Trinidad and Tobago; ATG - Antigua and Barbuda; MEX - Mexico; ARG - Argentina; KNA - Saint Kitts and Nevis; CHL - Chile; URY - Uruguay; VEN - Venezuela; PAN - Panama; CRI - Costa Rica; BRA - Brazil; LCA - Saint Lucia; VCT - Saint Vincent and the Grenadines; COL - Colombia; DMA - Dominica; PER - Peru; DOM - Dominican Republic; ECU - Ecuador; GRD - Grenada; JAM - Jamaica; SLV - El Salvador; GTM - Guatemala; PRY - Paraguay; BOL - Bolivia; HND - Honduras; NIC - Nicaragua

Source: OPAS / Tuberculosis in the Region of the Americas, 2009.

# Resources allocated to TB (in US\$), from 2000 to 2013



Source: National TB Control Program. \* 2013 Estimates

# **TB Treatment in Brazilian National Health System**

- **Free, with quality control**
- **Centralized procurement**
- **4 in 1 (RHZE) and 2 in 1 (RH) formula**
- **Technical standards and guidelines elaborated by a  
Technical Advisory Committee**
- **Active participation of civil society**

# Average Cost for TB Treatment Schemes in Brazil

- **Basic adult scheme (average estimated cost for adults and teenagers):**
  - ✓ Intensive phase (two months) - **US\$ 13.44**
  - ✓ Maintenance phase (four months) - **US\$ 8.19**
  - ✓ **Total - US\$ 21.63**
- **MDR-TB Treatment (average estimated cost for > 50 kg)**
  - ✓ Intensive phase (1st stage – two months) - **US\$ 411.01**
  - ✓ Intensive phase (2nd stage – four months) - **US\$ 808.93**
  - ✓ Maintenance phase (12 months) - **US\$ 2,312.00**
  - ✓ **Total - US\$ 3,531.94**
- **XDR-TB Treatment (140 patients):**
  - ✓ Clofazimina- **US\$ 133,617.02** (acquisition for approximately 2 years of treatment)
  - ✓ PAS - **US\$ 440,936.17** (acquisition for approximately 2 years of treatment)
  - ✓ Capreomicina- - **US\$ 144,170.21** (acquisition for approximately 2 years of treatment)
  - ✓ Linezolida- **US\$ 3,234,893.61** (acquisition for approximately 1 years of treatment)

# Xpert MTB/RIF available in SUS (RTR-TB)



GeneXpert® Equipment



Xpert MTB/Rif® cartridge

- PCR in real time: *M. tuberculosis*' DNA
- Extraction, amplification and detection: all in the cartridge (“all in one”)
- Test used for diagnosing new TB cases (not previously identified)
- Indicates resistance to rifampicine
- 1 sputum sample (sputum smear microscopy are usually 2)
- **Final result in 2 hours**
  - Simple Lab Structure (the same of sputum smear microscopy)
  - It does not demand for a specialized professional
  - No need for additional human resources
  - Stable electric energy and air conditioning
  - Common fridge for cartridge storing

# TB Rapid Test Implementation Strategy

- Municipalities with more than 200 TB new cases reported in 2011
- Capitals of states that were not included in the above criteria (<200 new cases reported in 2011)
- Municipalities with prisons that has laboratory structure and significant demand for smear
- Municipalities on the borders and/or indigenous population (> 50 TB new cases reported in 2011)
- States where the Public Health Lab have significant demand for smear

**60 municipalities that cover 60% of all TB new cases  
expected**

# Integration between TB and HIV/AIDS

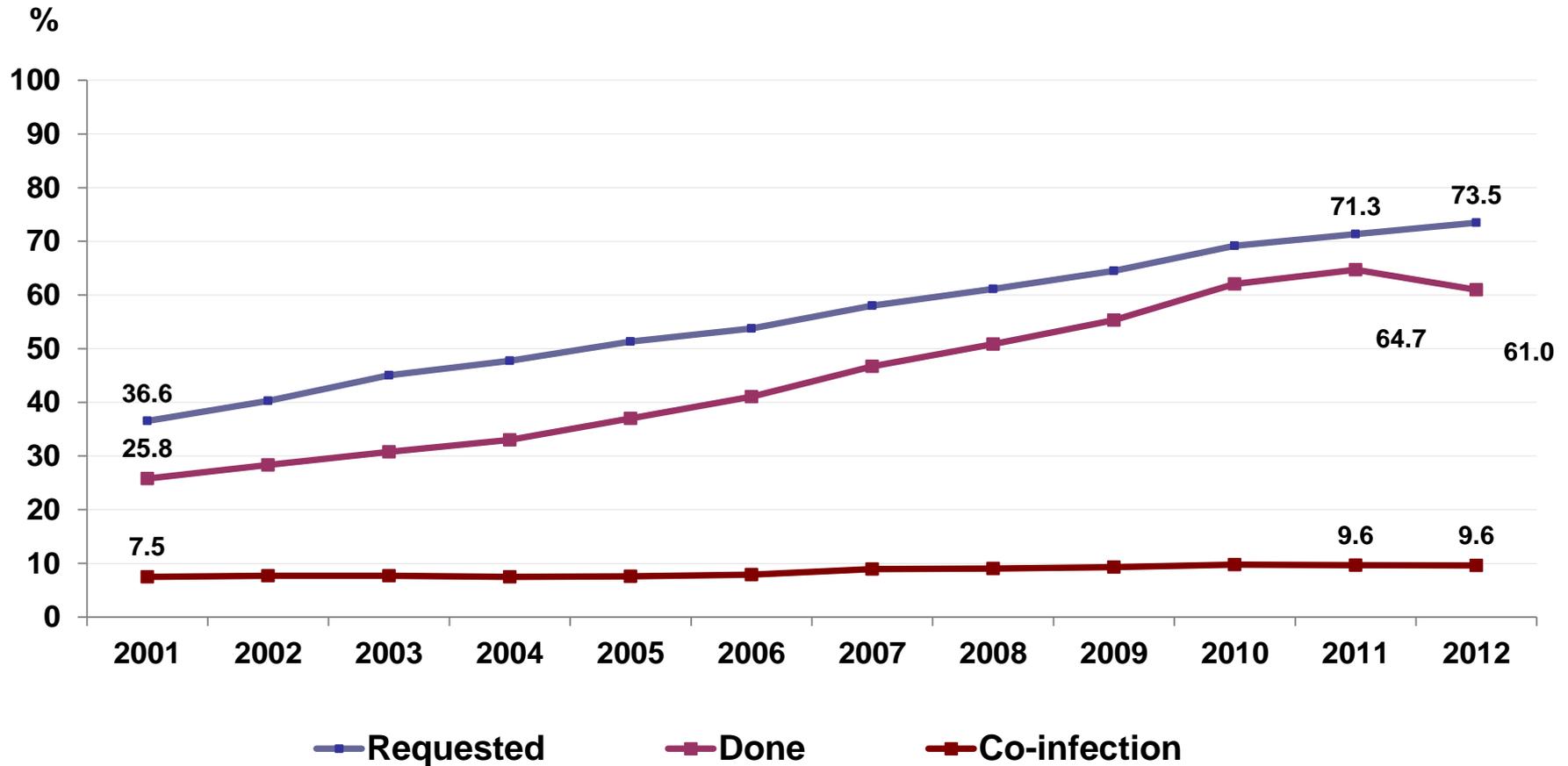
## Recommendations for TB-HIV co-infection management at SCS



- Access and Counseling
- Clinical Care
- Antiretroviral therapy
- Clinical follow-up
- Strategies for treatment adherence
- Notification and epidemiological surveillance
- Contacts evaluation
- Reference for secondary or tertiary care in TB
- Strategies to reduce the TB burden

***Tuberculosis was already present in the SCS but not always visible***

# Percentage of new cases of TB-HIV co-infection, application and HIV testing. Brazil, 2001-2012 \*



Source: MS/SINAN. \* Preliminary data, subject to revision.

# Coordination between Ministry of Health and Ministry of Social Assistance

- Joint actions between health system and social assistance
- Linkage between Sinan-TB and Cad.Único/Bolsa Família.
- Monitoring and evaluation of TB indicators in the Brazil without Poverty Plan
- Cash transfer for TB and leprosy patients

# Brasil sem Miséria

## Brazil Without Extreme Poverty Plan

### Goal

**Increase income and improve welfare for the population. Addressed to extremely poor families**

### Axis

**Income guarantee**

**Access to public services**

**Productive inclusion**

# Linkage between Sinan-TB and Cad.Único



**2010**

**23,8% of new  
cases registered  
in Cad.Único**

**2011**

**25% of new  
cases registered  
in Cad.Único**

**\*excluded: prisoners, homeless and indigenous people**

# Effectiveness of Bolsa Família in TB outcomes. Brazil, 2010

<b>Intervention/ control</b>	<b>Cure n (%)</b>	<b>not cure n (%)</b>	<b>RR</b>	<b>IC 95%</b>
<b>Intervention</b>	<b>5.840 (81,4)</b>	<b>1.336 (18,6)</b>	<b>1,07</b>	<b>1,04 - 1,10</b>
<b>Control</b>	<b>1.421 (76,2)</b>	<b>443 (23,8)</b>		

Source: Sinan-TB and Cad.Único

# Association between TB incidence rate and Bolsa Família coverage, Brazil, 2004 – 2011

Variables	TB incidence rate	
	RR (IC <sub>95%</sub> )	
	Unadjusted model	Adjusted model
<b>Bolsa Família coverage</b>		
0 – 29 %	1	1
30 – 69 %	0,95 (0,92 – 0,98)	0,96 (0,92 – 0,99)
Acima de 70 %	0,89 (0,86 – 0,92)	0,90 (0,87 – 0,93)
<b>ESF coverage</b>		
No coverage	1	1
0 – 29 %	0,97 (0,94 – 1,00)	0,97 (0,94 – 1,00)
30 – 69 %	0,96 (0,93 – 1,00)	0,99 (0,96 – 1,02)
Acima de 70 %	0,94 (0,90 – 0,97)	0,98 (0,94 – 1,01)
<b>Unemployment rate ≥ 8,00%</b>	-	1,00 (0,98 – 1,03)
<b>Average number of people per household ≥ 3,5</b>	-	1,04 (1,02 – 1,05)
<b>Average monthly income per capita ≥ 405,01 R\$</b>	-	0,92 (0,89 – 0,96)
<b>Illiteracy rate ≥ 14,4%</b>	-	1,07 (1,03 – 1,12)
<b>Índice de Gini ≥ 0,534</b>	-	1,00 (0,98 – 1,03)
<b>Aids incidence (per 100,000 inhab) ≥ 8,35</b>	-	1,00 (0,98 – 1,02)
<b>Number of observations</b>	19,664	19,664
<b>Number of municipalities</b>	2,458	2,458

# Parliamentary Coalition to Fight TB

- Established on May 8, 2012
- Special Subcommittee for poverty related diseases and the tuberculosis outcomes
- The final report highlighted the need for intersectorial work to respond to the complexity of poverty related disease

# Post 2015 Global TB Strategy

**Bold goals** and  
based on  
innovation

**Pillar II:** social  
protection and  
universal health  
coverage inspired  
in Brazilian Public  
Health System  
SUS

**Role of Brazil:**  
sponsor of the new  
strategy in the World  
Health Assembly

**Thanks for your attention**

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