

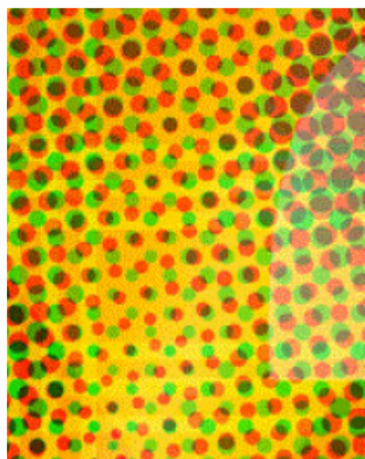
# ***DRUG-RESISTANT TB***

---

## ***SURVEILLANCE & RESPONSE***

**2<sup>nd</sup> Meeting of the Core Group of GDI**  
**27 October 2014**  
**Barcelona, Spain**





# The global TB situation (1)

**Estimated  
incidence, 2013**

**Estimated number  
of deaths, 2013**

**All forms of TB**

**9.0 million**  
(8.6–9.4 million)

**1.1 million\***  
(1.0–1.3 million)

**HIV-associated TB**

**1.1 million**  
(1.0–1.2 million)

**360,000**  
(310,000–410,000)

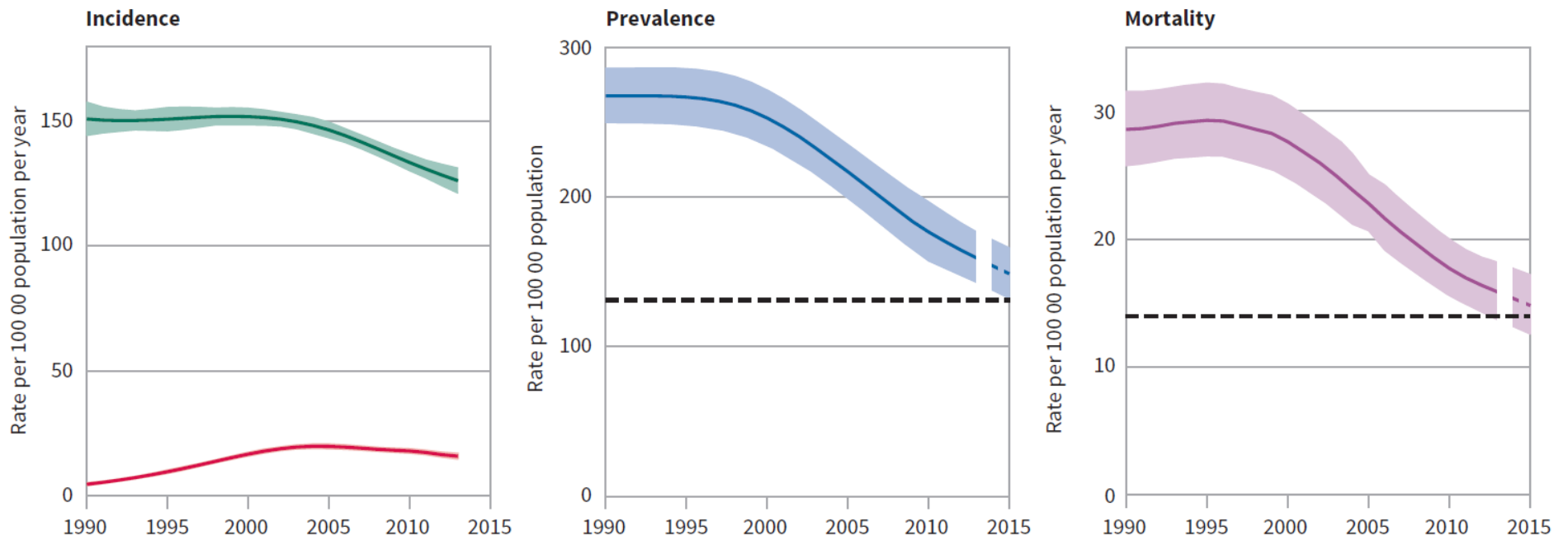
**Multidrug-  
resistant TB**

**480,000**  
(350,000–610,000)

**210,000**  
(130,000–290,000)

# The global TB situation (2)

## Global trends in estimated rates of TB incidence, prevalence and mortality



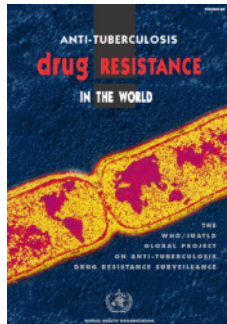
Global trends in estimated incidence rate including HIV-positive TB (green) and estimated incidence rate of HIV-positive TB (red). The dashed lines represent the Stop TB Partnership targets of a 50% reduction in prevalence and mortality rates by 2015 compared with 1990. Shaded areas represent uncertainty bands. Mortality excludes TB deaths among HIV-positive people.

# **DR-TB SURVEILLANCE**

# The Global Project on Anti-TB Drug Resistance Surveillance, 1994-2014

Global Project launched

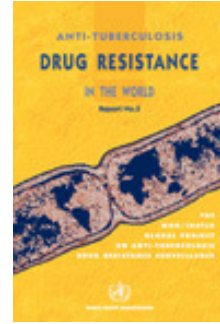
SRL network launched



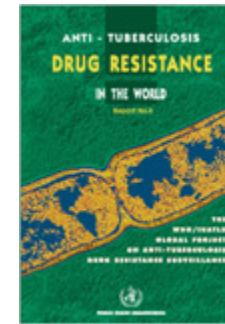
1st global DRS report



2nd global DRS report



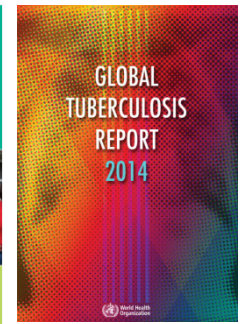
3rd global DRS report



4th global DRS report



M/XDR-TB report



2014 TB report

1994

1997

2000

2003

2004

2008

2009

2010

2014

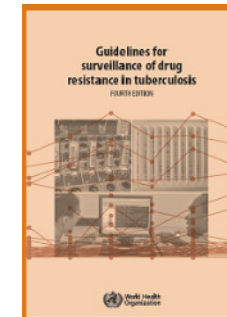
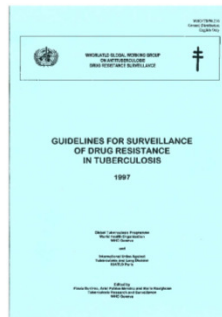
1st ed. DRS guidelines

2nd ed. DRS guidelines

3rd ed. DRS guidelines

4th ed. DRS guidelines

5th ed. DRS guidelines



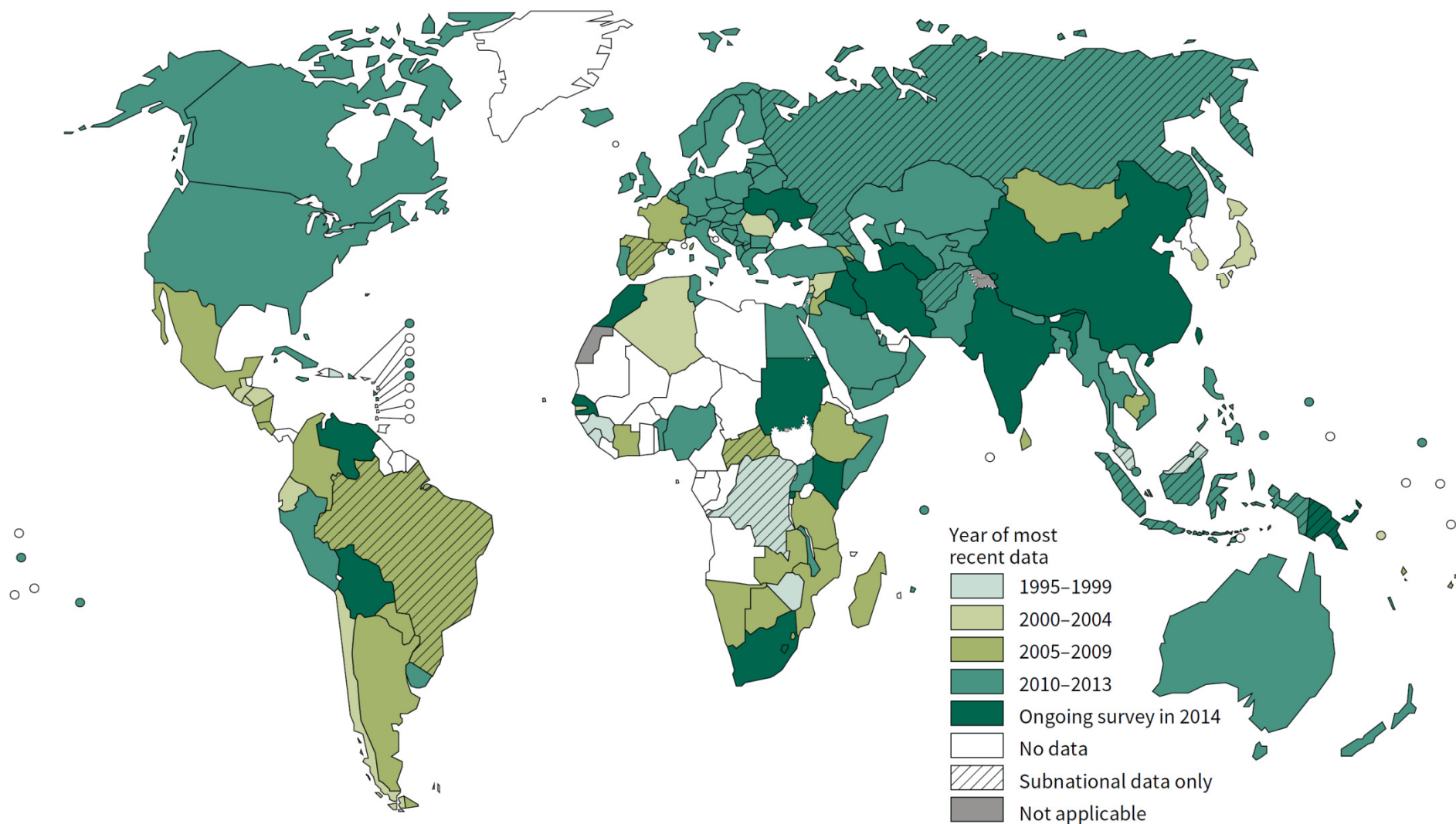
being finalized

# The SRL Network, 2014



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2014. All rights reserved

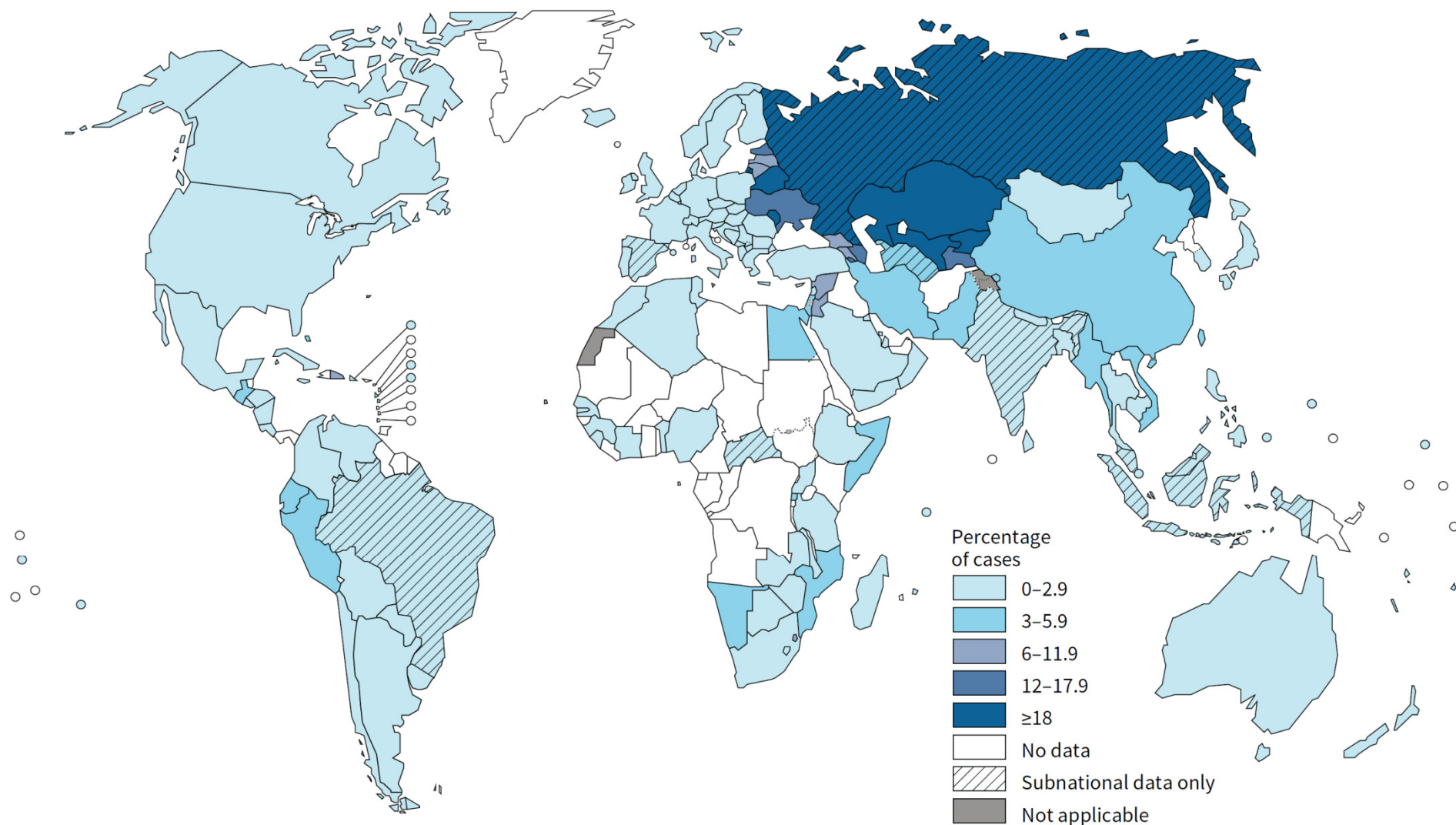
# Progress in global coverage of surveillance data on drug resistance, 1994-2014



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2014. All rights reserved



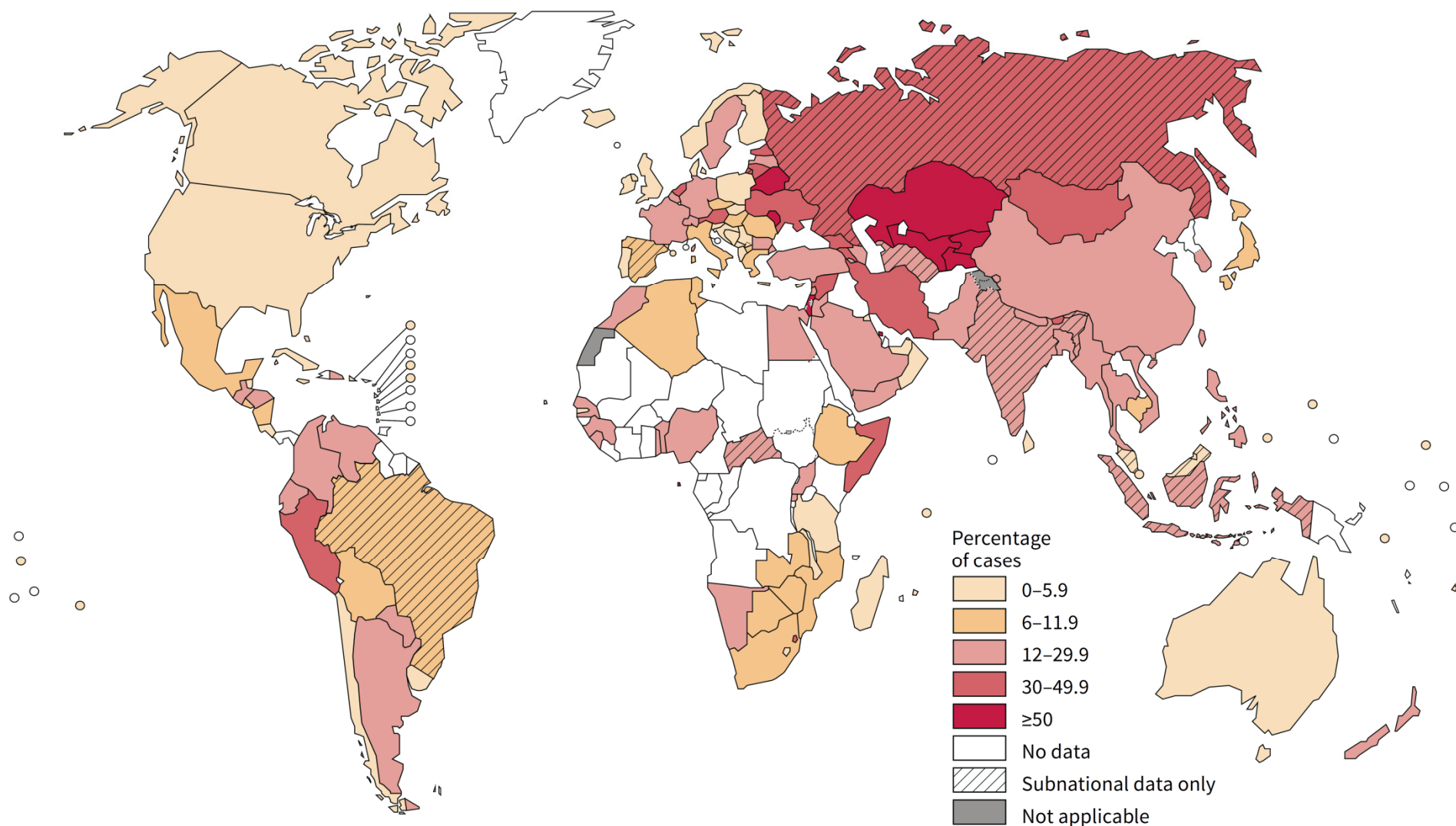
# Percentage of new TB cases with MDR-TB



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2014. All rights reserved

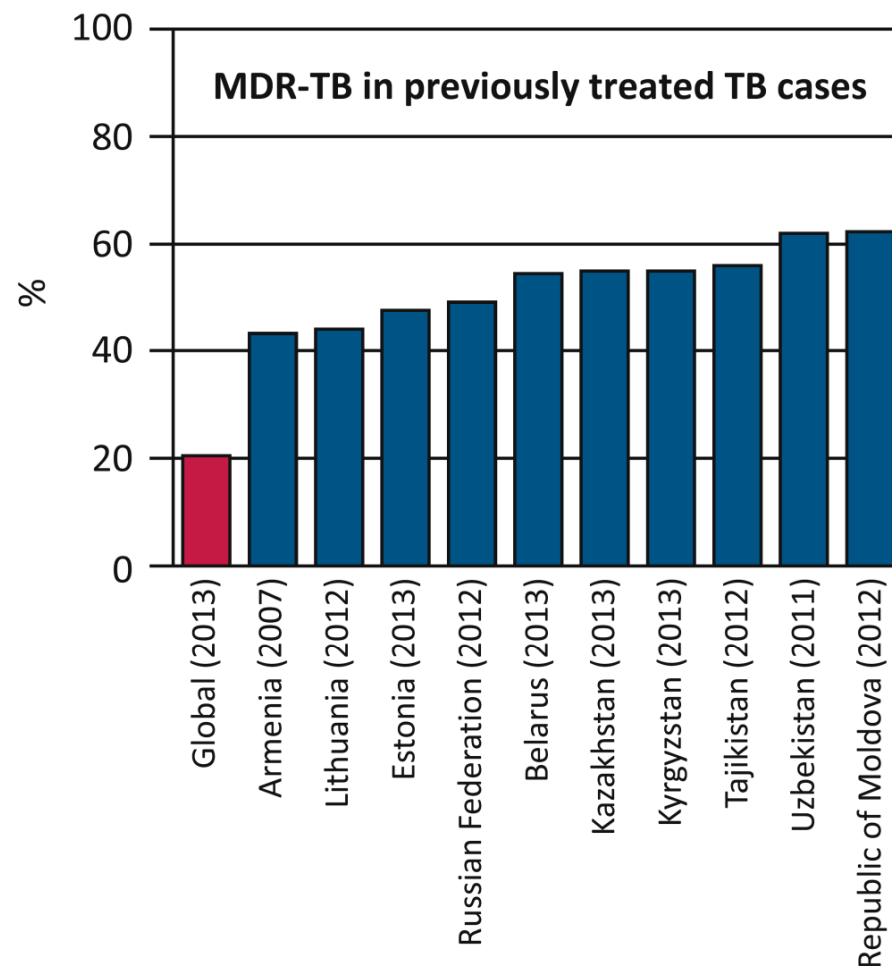
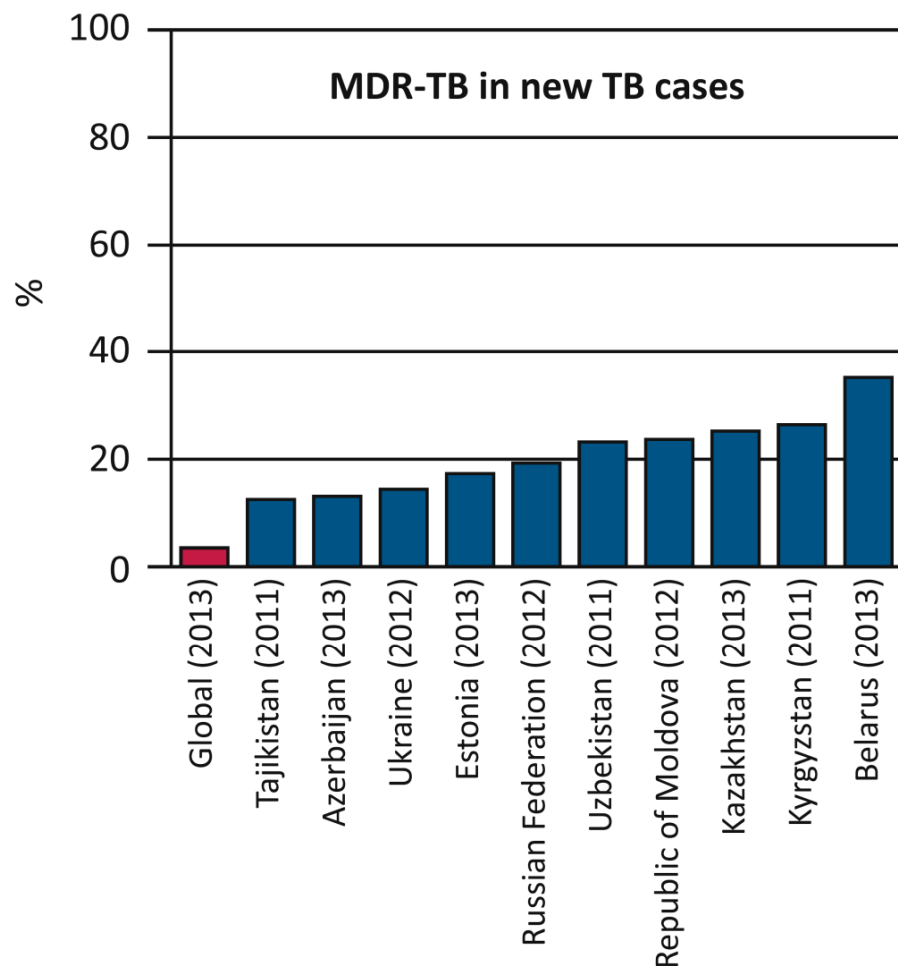


# Percentage of previously treated TB cases with MDR-TB



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2014. All rights reserved

# Percentage of new and previously treated TB cases with MDR-TB globally and in the top 10 countries, 2014

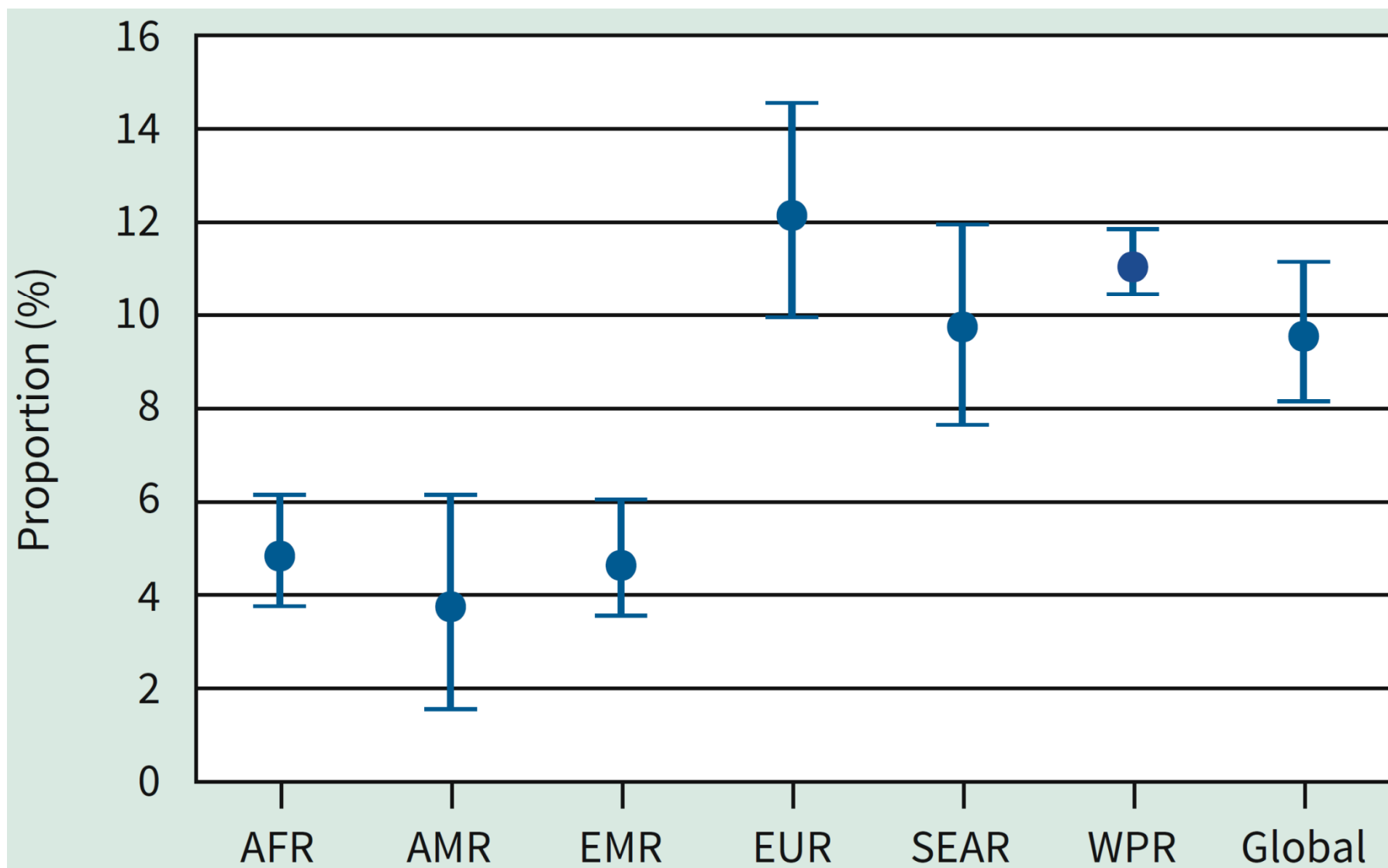


## Percentage of new and previously treated TB cases with MDR-TB globally and in the top 10 countries, 2014

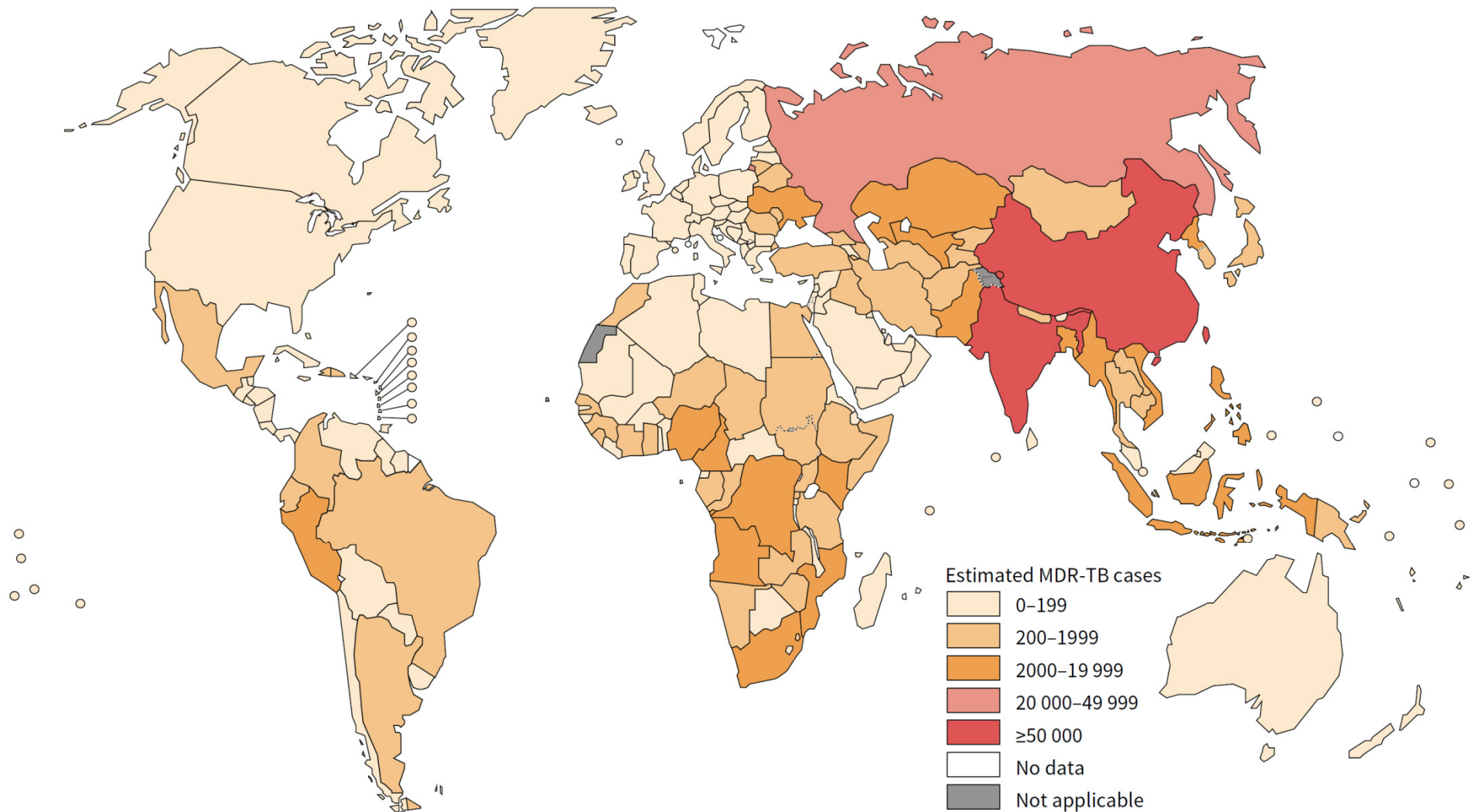
	ESTIMATED % OF NEW TB CASES WITH MDR-TB <sup>a</sup>	CONFIDENCE INTERVAL	ESTIMATED % OF RETREATMENT TB CASES WITH MDR-TB <sup>a</sup>	CONFIDENCE INTERVAL
AFR	2.4	0.2–5.0	13	0.02–27
AMR	2.2	1.3–3.0	13	4.9–22
EMR	3.6	2.3–5.0	22	12–32
EUR	14	9.7–19	44	36–52
SEAR	2.2	1.8–2.7	16	12–20
WPR	4.4	2.6–6.3	22	18–26
<b>Global</b>	<b>3.5</b>	<b>2.2–4.7</b>	<b>21</b>	<b>14–28</b>



## Proportion of all TB cases with resistance to isoniazid but without resistance to rifampicin, 1994-2013

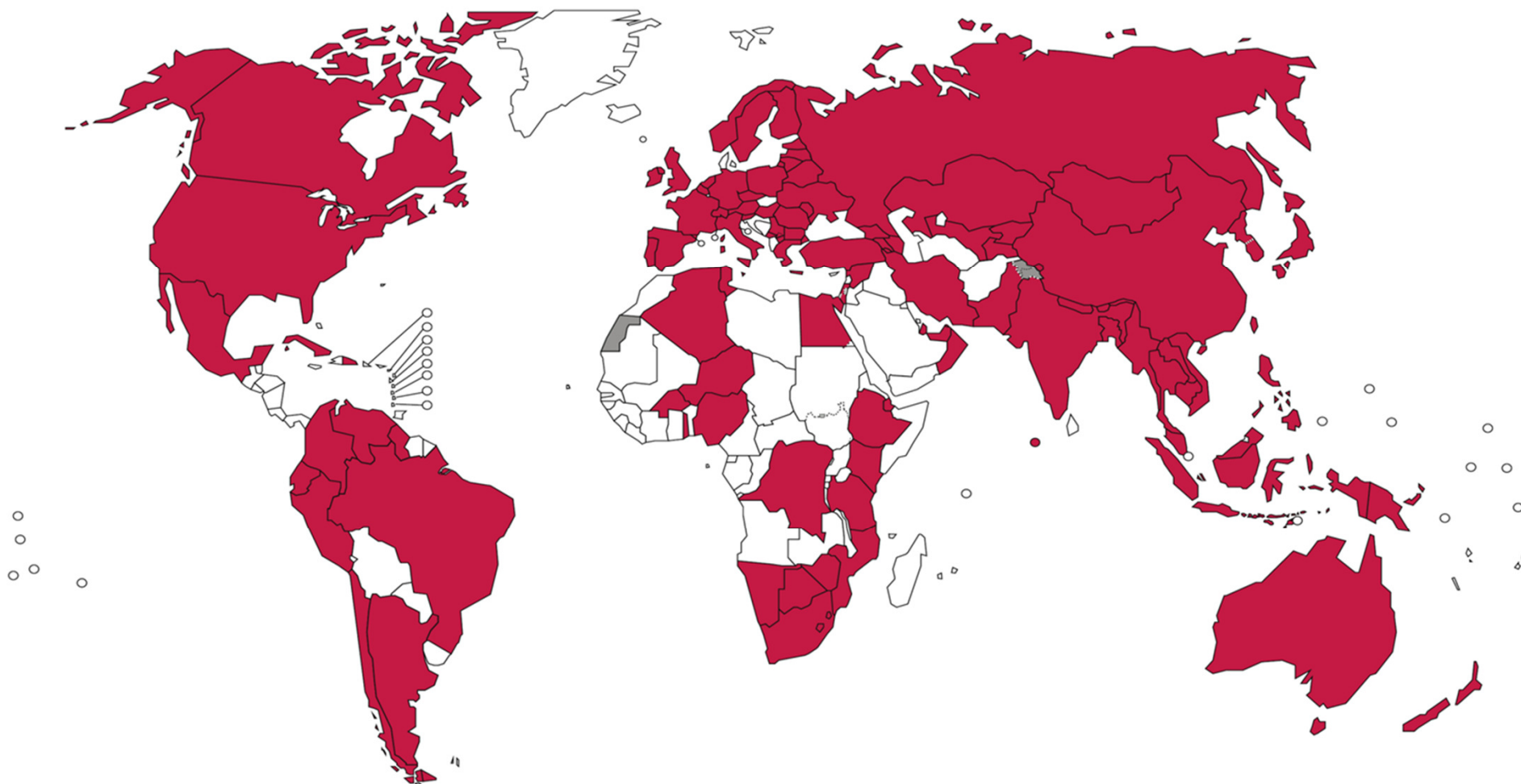


# MDR-TB cases estimated to occur among notified pulmonary TB cases, 2013



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2014. All rights reserved

# Countries that notified at least one case of XDR-TB



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

© WHO 2014. All rights reserved



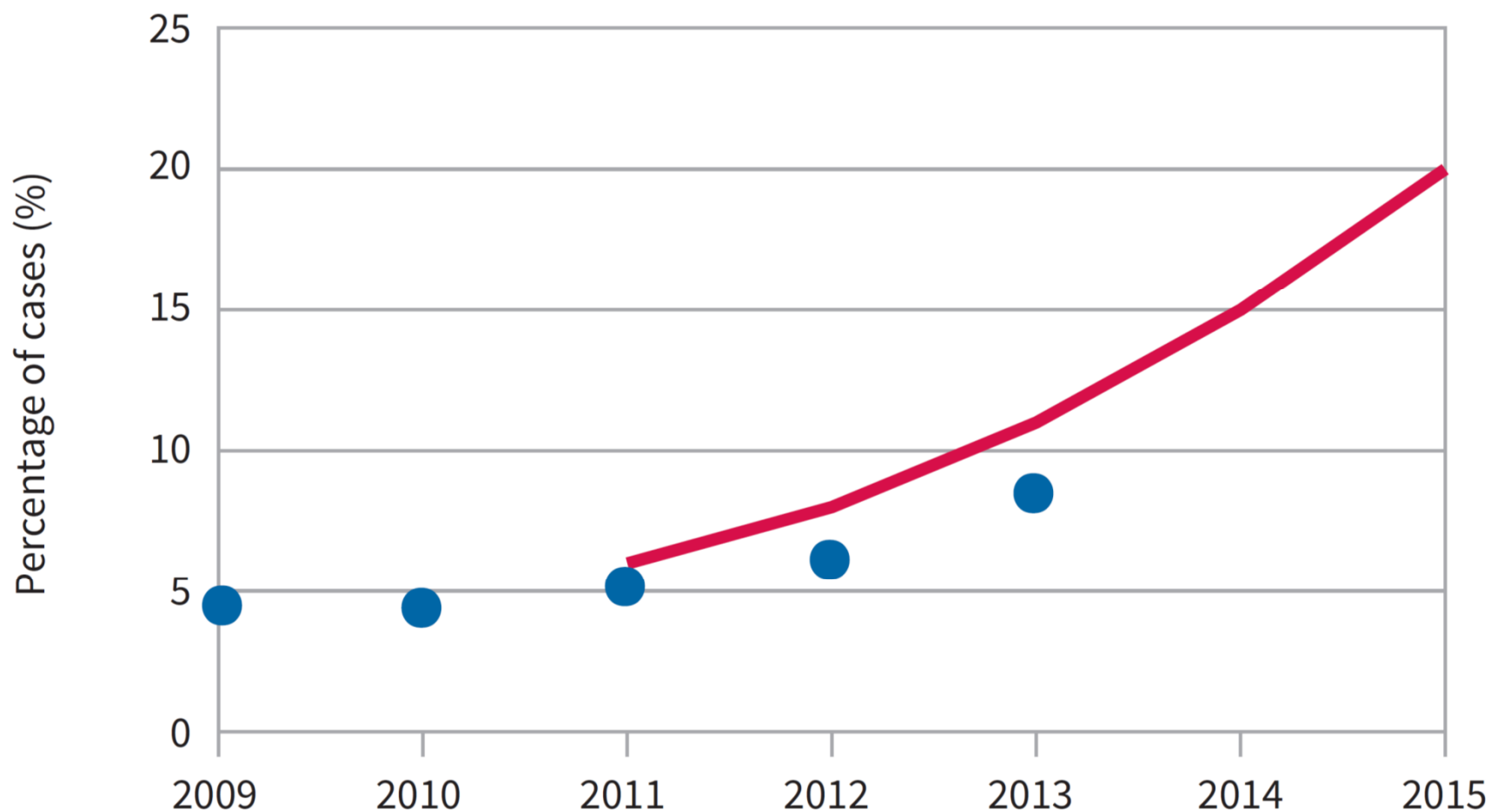
# **DR-TB RESPONSE**

# WHO guidance on the management of drug-resistant TB, 1996-2014



# Diagnostic DST (1)

For rifampicin +/- isoniazid in new bacteriologically-confirmed  
TB cases, 2009-2013  
(& projections 2011-15 as per Global Plan)





# Diagnostic DST (2)

For rifampicin +/- isoniazid in retreatment  
TB cases by Region, 2009-2013



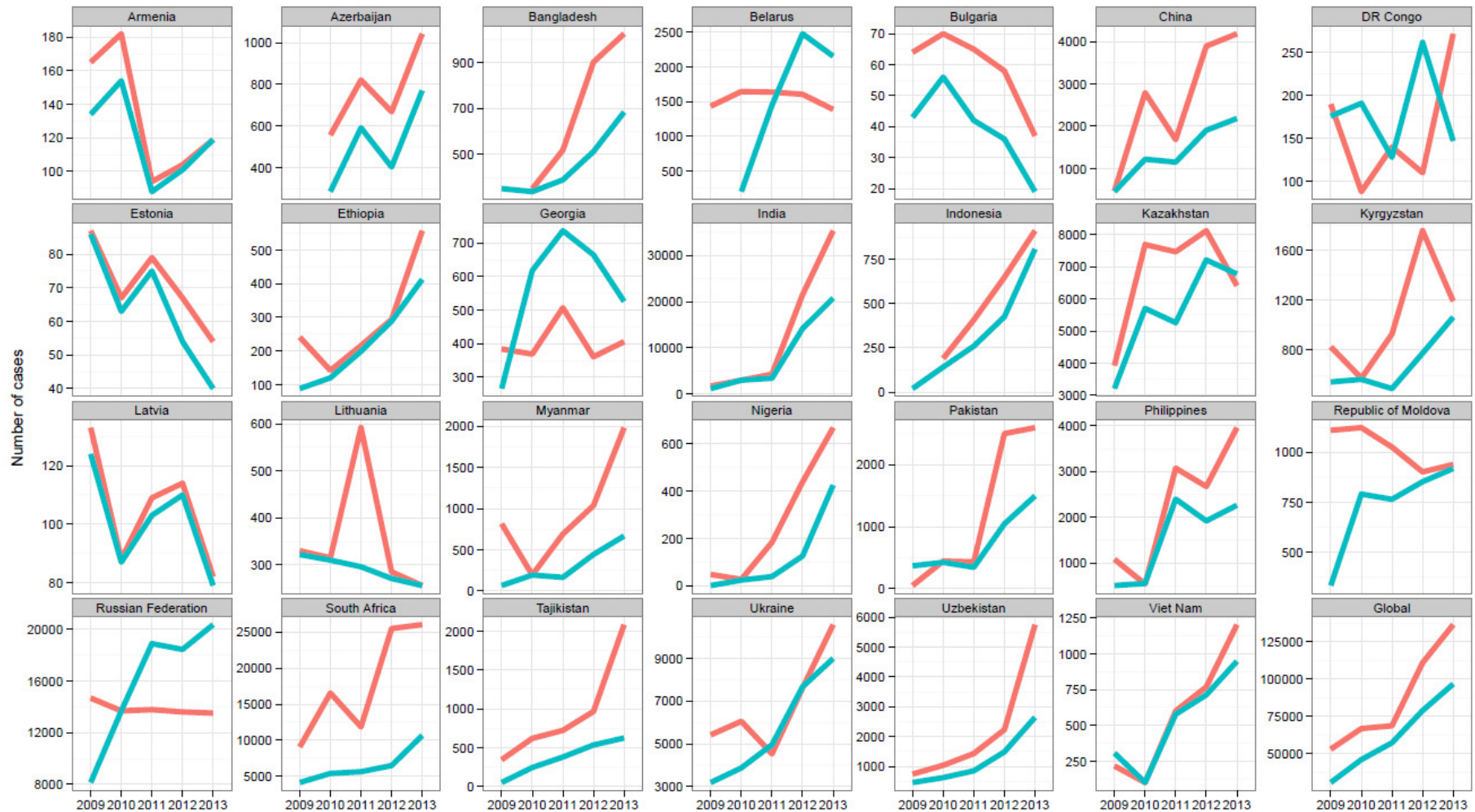
# Diagnostic DST (3)

For fluoroquinolones and second-line injectable drugs  
among MDR-TB cases, 2013

	CONFIRMED MDR-TB CASES	
	NUMBER WITH DST RESULTS	% OF CASES WITH DST RESULT
AFR	9 045	64
AMR	1 364	46
EMR	2 299	79
EUR	3 758	9.5
SEAR	3 088	11
WPR	2 326	39
<b>Global</b>	<b>21 880</b>	<b>23</b>

# RR-/MDR-TB notification and enrolment

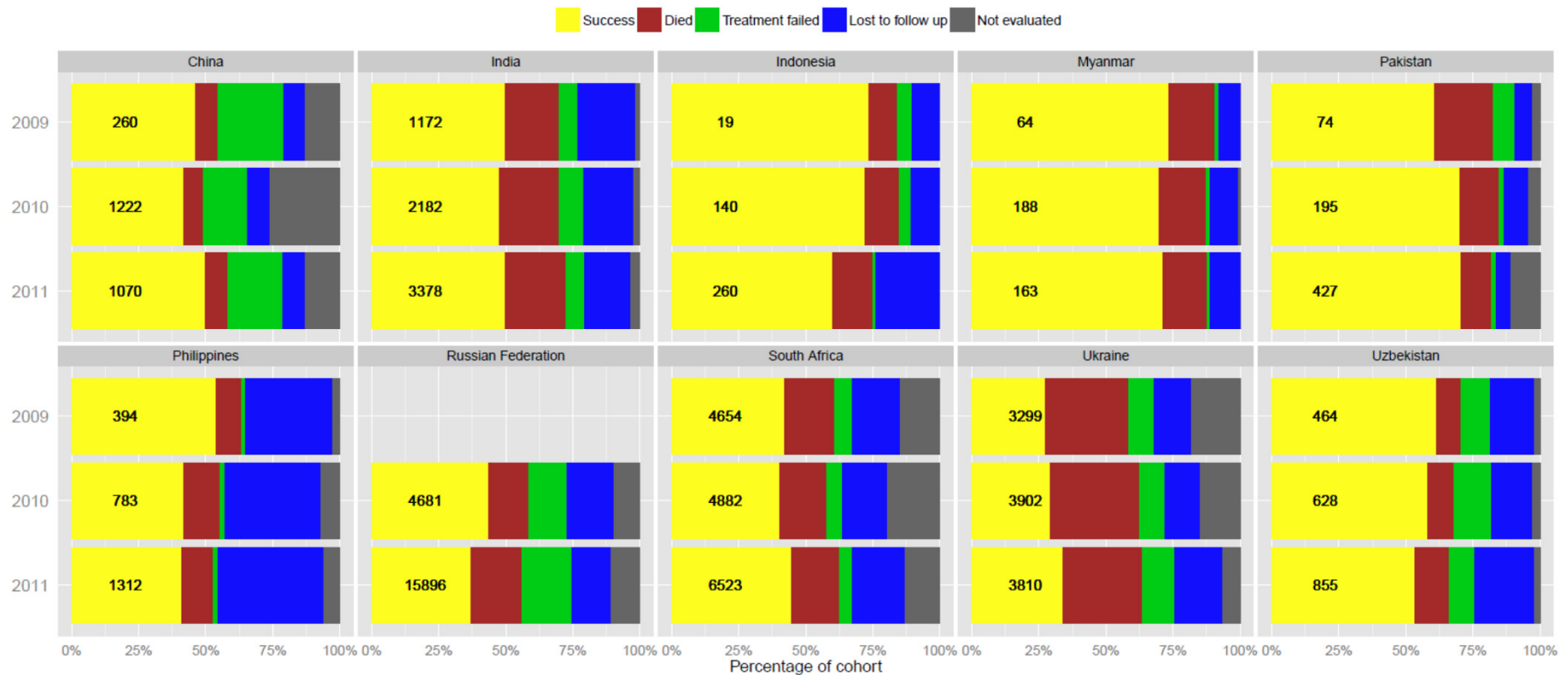
MDR-TB cases and additional rifampicin-resistant TB cases detected (orange)  
compared with TB cases enrolled on MDR-TB treatment (turquoise),  
global trend and trend in 27 high MDR-TB burden countries, 2009–2013





# Outcomes of MDR-TB treatment

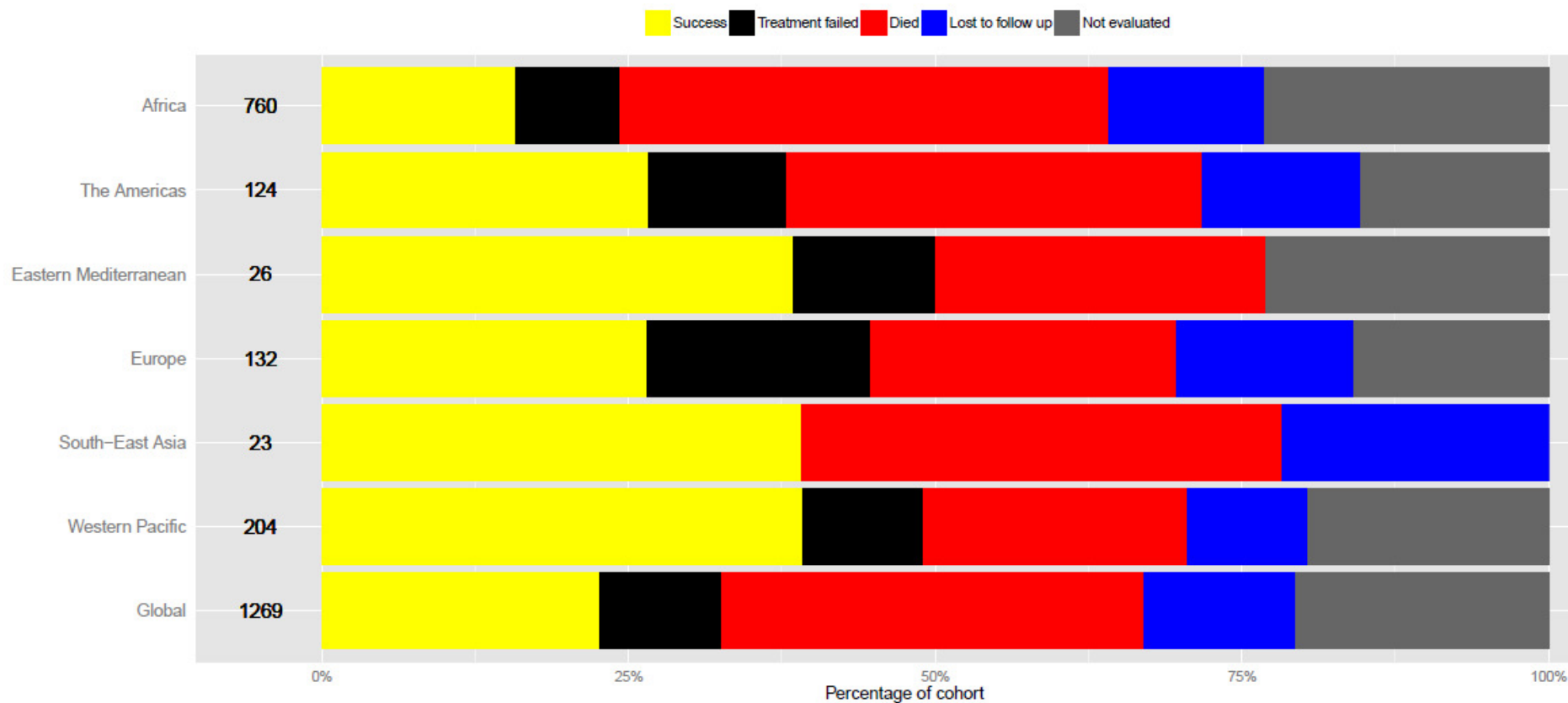
MDR-TB cohorts 2009-2011, top 10 MDR-TB burden countries\*



\*number of cases observed shown over the bars

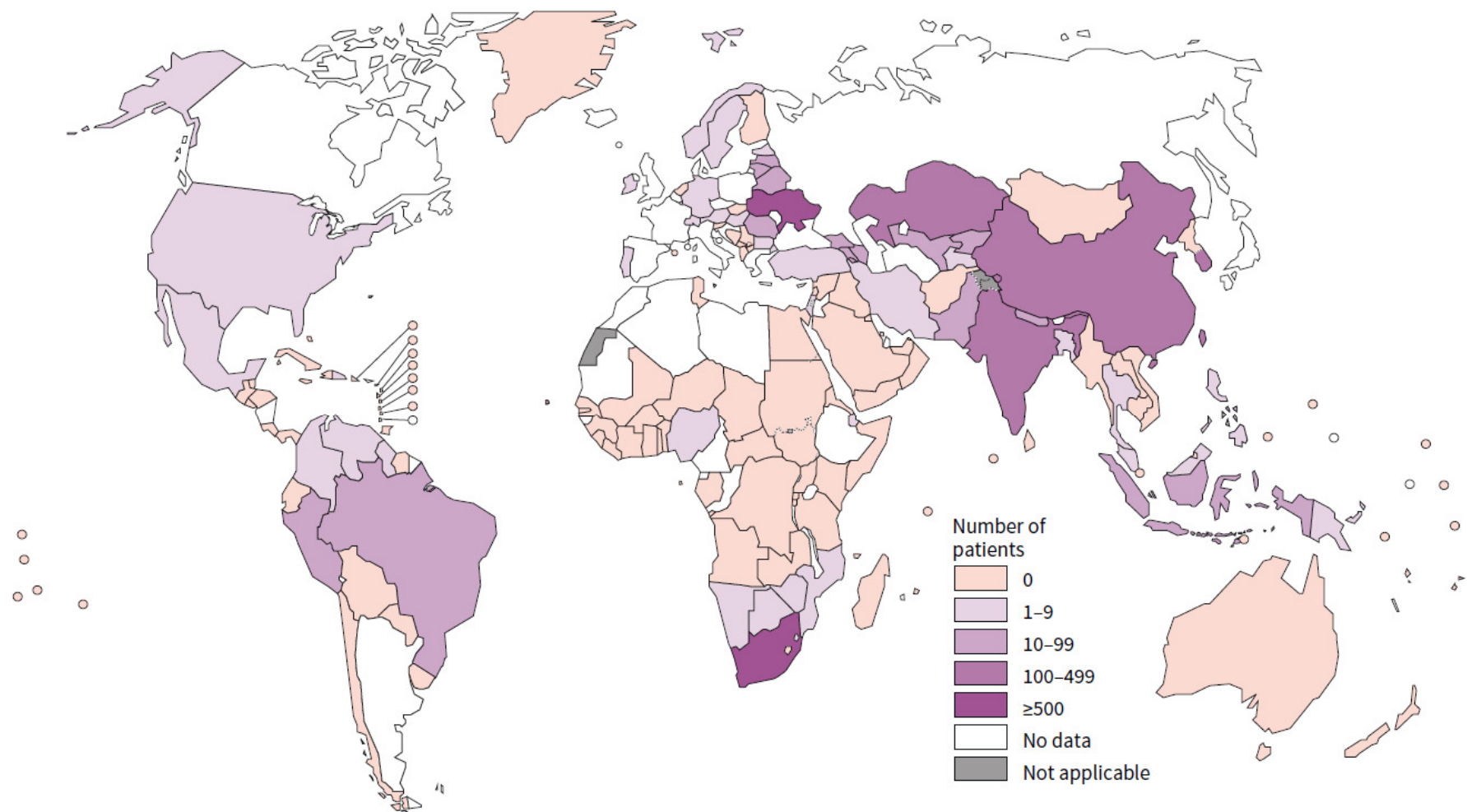
# Outcomes of XDR-TB treatment

XDR-TB cohorts 2011, by WHO Region\*



\*number of cases observed shown over the bars

# Number of patients with laboratory-confirmed XDR-TB started on treatment in 2013



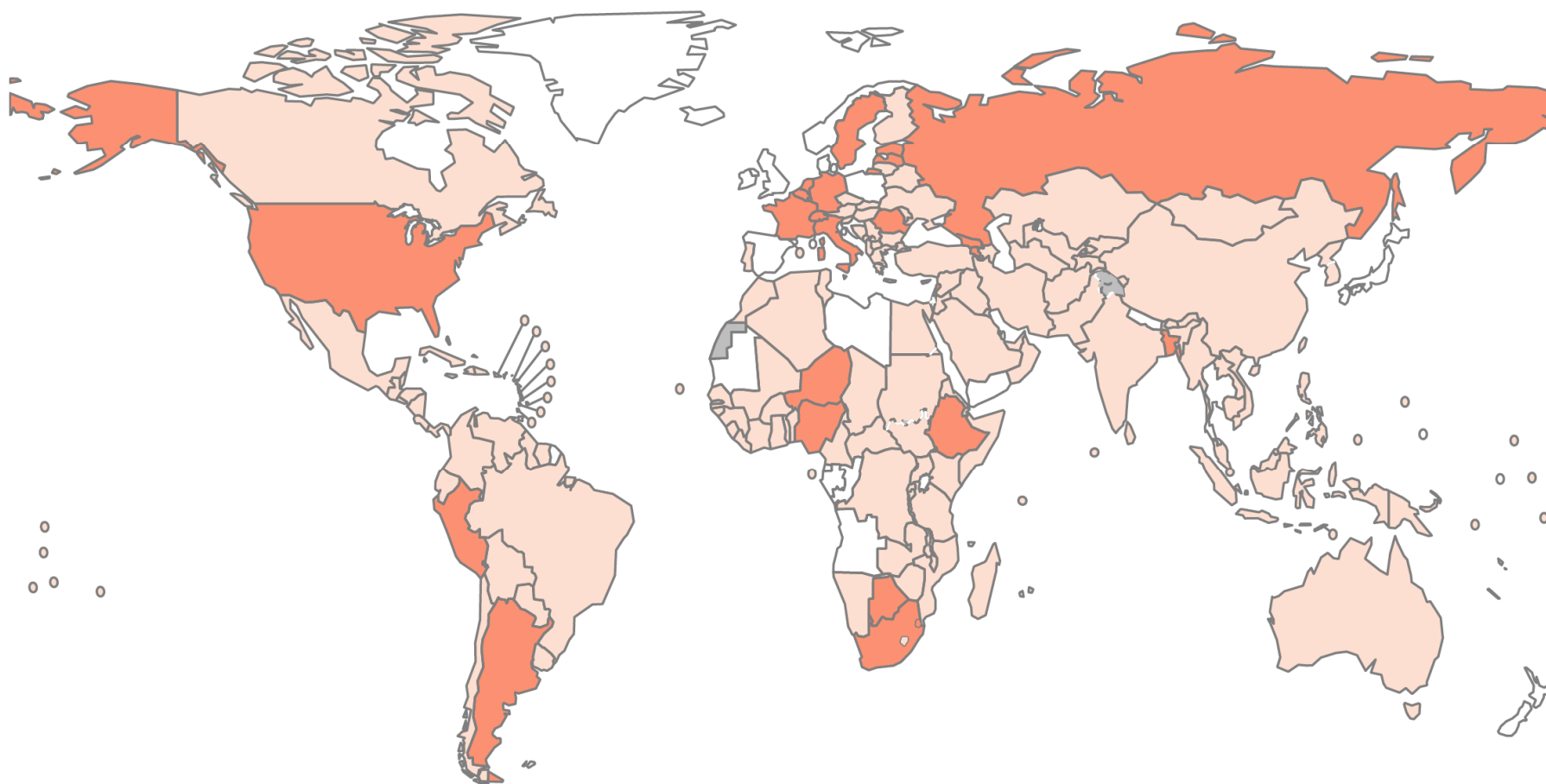
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

© WHO 2014. All rights reserved

# Countries that had used bedaquiline for the treatment of M/XDR-TB as part of expanded access, compassionate use or under normal programmatic conditions by the end of 2013

white=no information

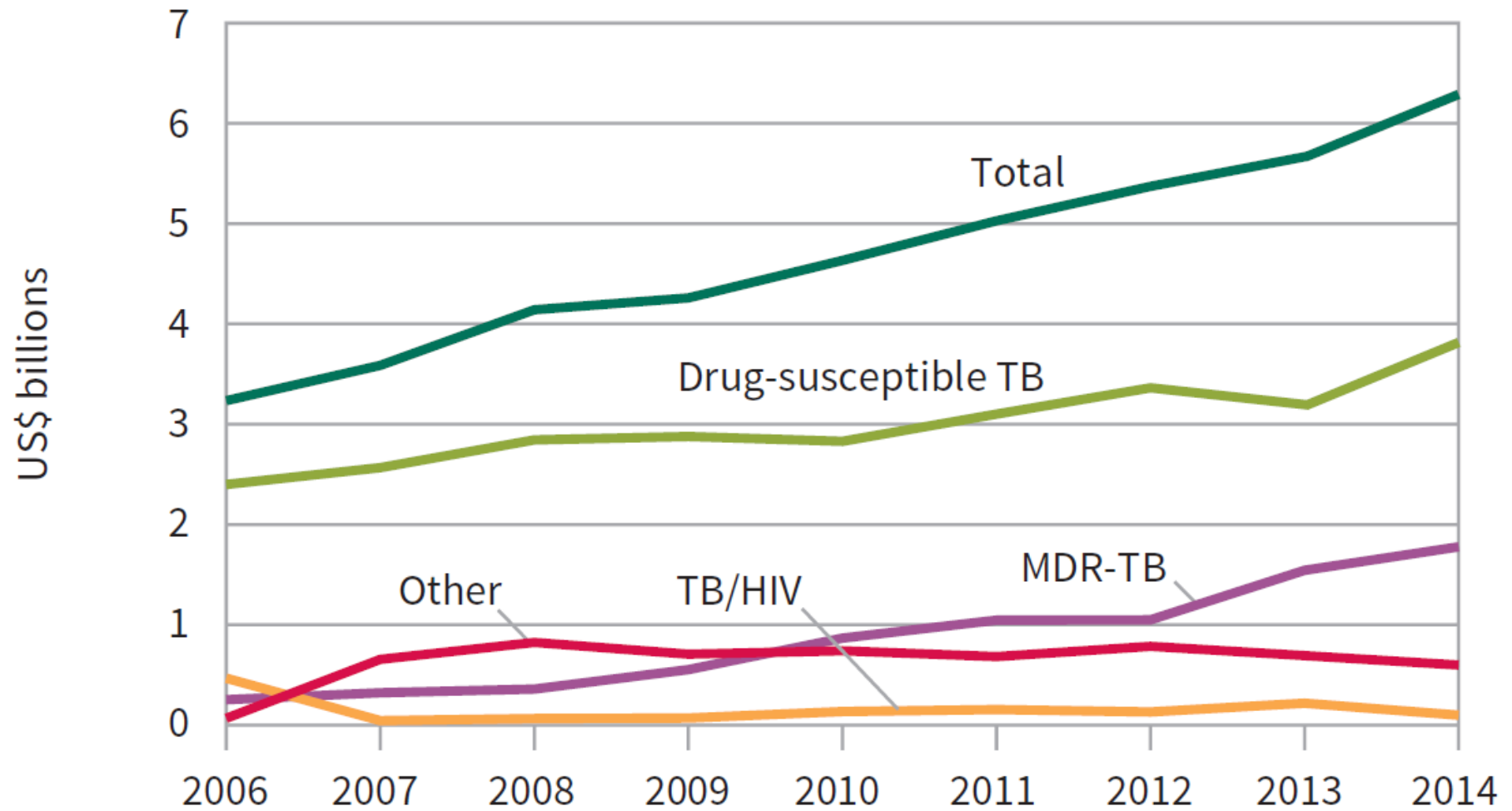
No Yes



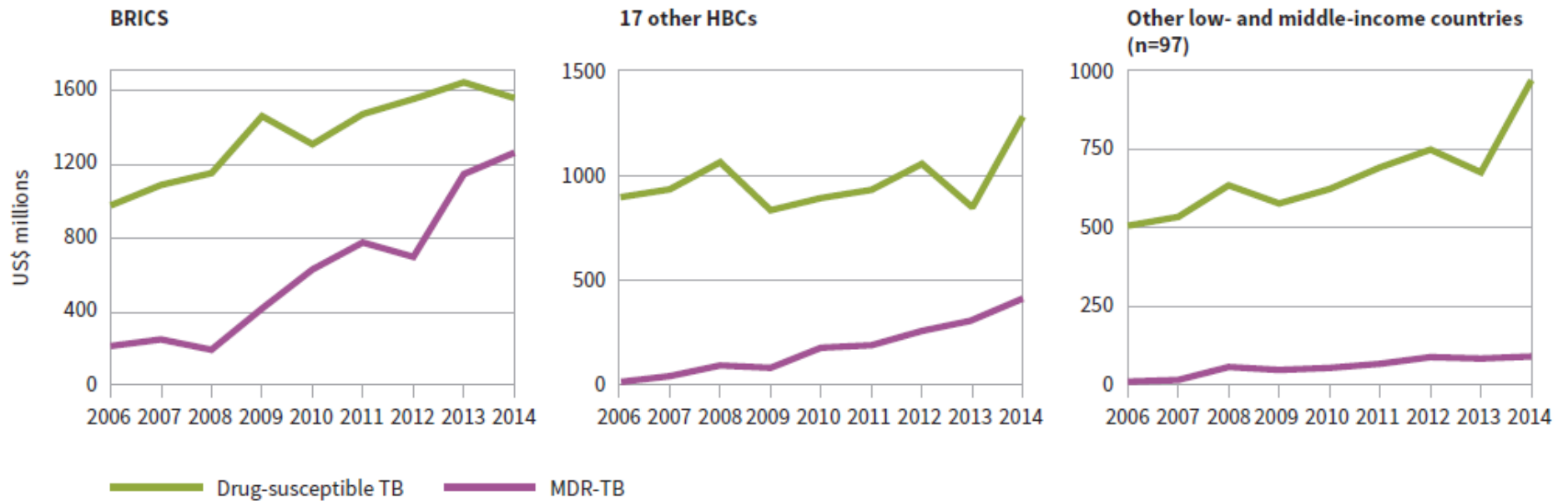
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2014. All rights reserved



# Funding for TB prevention, diagnosis and treatment by intervention area, 2006–2014 (constant 2014 US\$ billions)

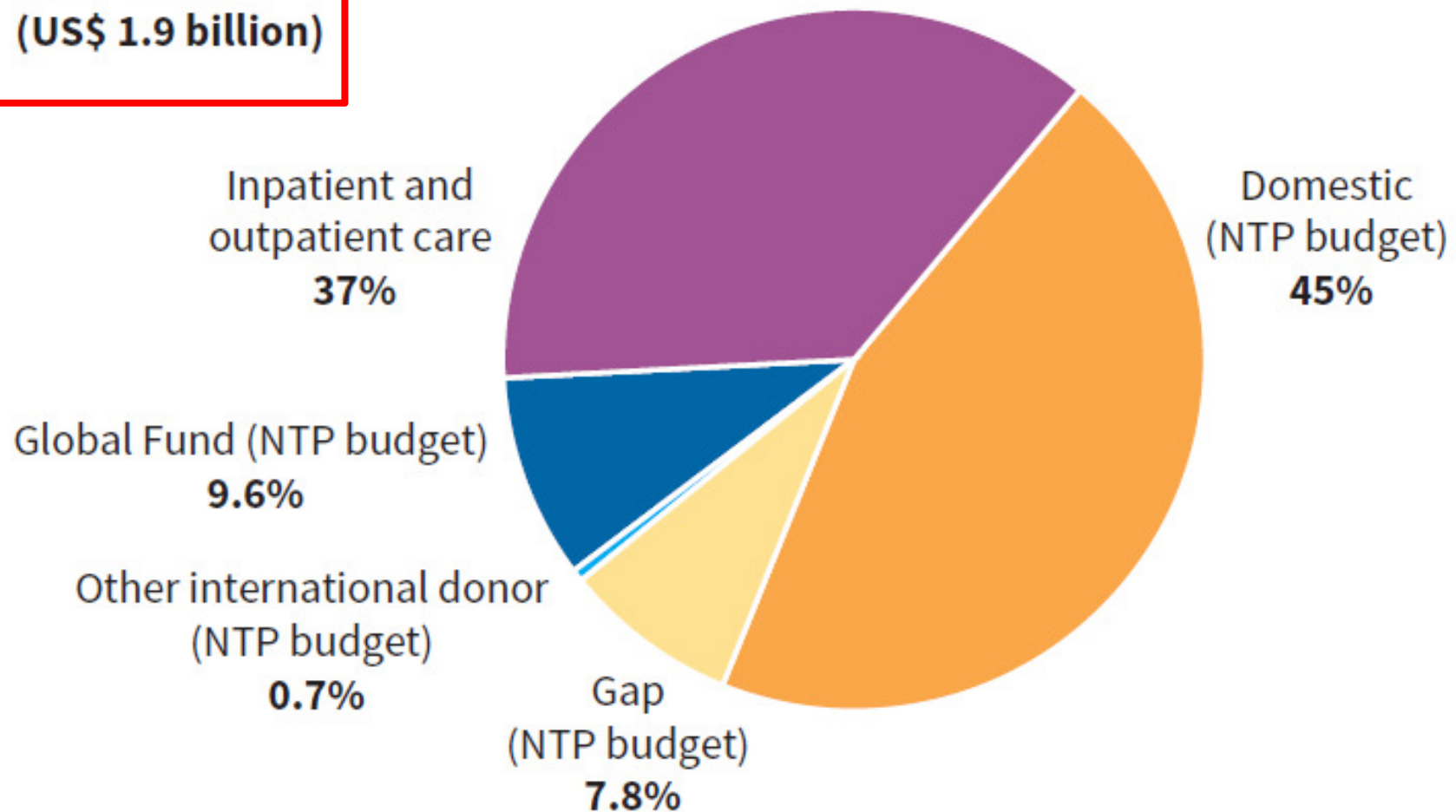


# Funding for drug-susceptible TB and MDR-TB, 2006–2014, by country group (constant 2014 US\$ billions)



# Funding sources and funding gap for MDR-TB, 2014

**MDR-TB**  
**(US\$ 1.9 billion)**



**300 000**



**cases of MDR-TB estimated among TB patients reported by  
national TB programmes in 2013**

**136 000**



**patients with MDR-TB**

(136 000 out of 300 000) were detected and reported in 2013

**97 000**



**people with TB were started on second-line treatment for  
MDR-TB in 2013, leaving many patients on waiting lists  
for treatment**

**48%** 

**of MDR-TB patients globally had a successful  
treatment outcome**

Five out of the 27 high MDR-TB countries achieved  
a treatment success rate of  $\geq 70\%$

# Conclusions (1)

- Even if most TB patients in the world are not drug-resistant, the burden of MDR-TB in the world poses a formidable challenge to the prospect of controlling TB. More resources need to be committed in future to ensure that targets are reached.
- Coverage of DST for TB patients remains low and thus a minority of drug-resistant TB patients are detected and notified. Information remains incomplete.
- Progress has been achieved in recent years in scaling-up MDR-TB care. However, 1/3 of the estimated cases eligible for MDR-TB treatment among known TB patients were started on treatment. In many countries, a sizeable gap has developed between diagnostic and enrolment capacity, leading to waiting lists for MDR-TB treatment.



## Conclusions (2)

- Treatment of MDR-TB is complicated and less effective than for drug-susceptible TB. Countries need to place more MDR-TB patients on adequate treatment and strive to attain the Global Plan target of 75% success.
- Country reporting of surveillance and monitoring data continues to improve. However, efforts need to take better advantage of available information & communication technologies to collect data efficiently and provide managers with indicators for timely action.

# FIVE PRIORITY ACTIONS TO ADDRESS THE GLOBAL MDR-TB CRISIS



Prevent the development of drug resistance through high quality treatment of drug-susceptible TB



Expand rapid testing and detection of drug-resistant TB cases



Provide immediate access to effective treatment and proper care



Prevent transmission through infection control



Increase political commitment with financing

## **© World Health Organization 2014**

All rights reserved. Publications of the World Health Organization are available on the WHO web site ([www.who.int](http://www.who.int)) or can be purchased from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: [bookorders@who.int](mailto:bookorders@who.int)). Requests for permission to reproduce or translate WHO publications – whether for sale or for noncommercial distribution – should be addressed to WHO Press through the WHO web site ([http://www.who.int/about/licensing/copyright\\_form/en/index.html](http://www.who.int/about/licensing/copyright_form/en/index.html)).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.