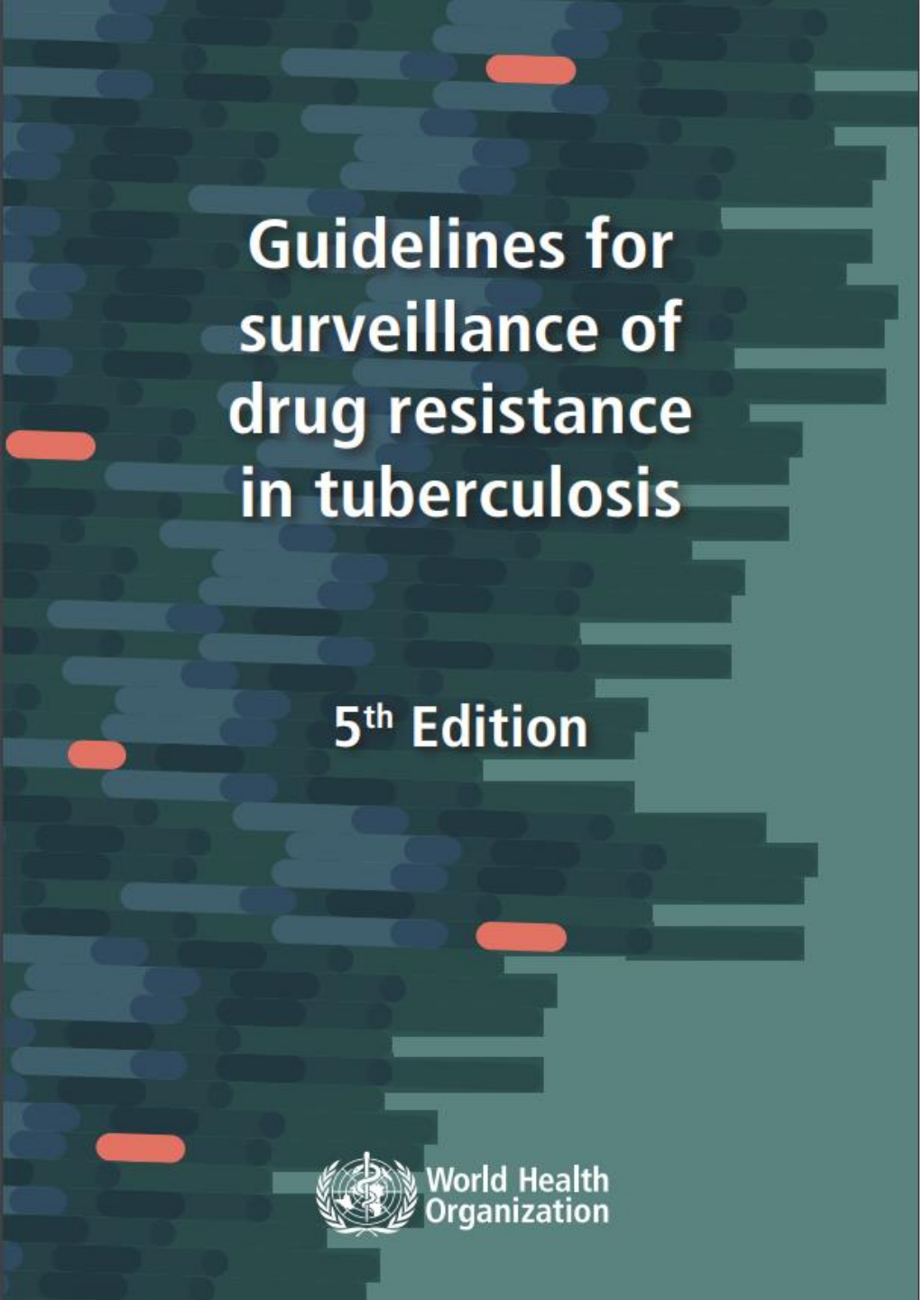


Global burden of drug resistant TB

Philippe Glaziou
September 2018

Global DR surveillance principles

1. **Representativeness** of tested pulmonary cases with bact confirmation
2. Disaggregation by **treatment history**
3. **Quality assurance** of drug susceptibility testing

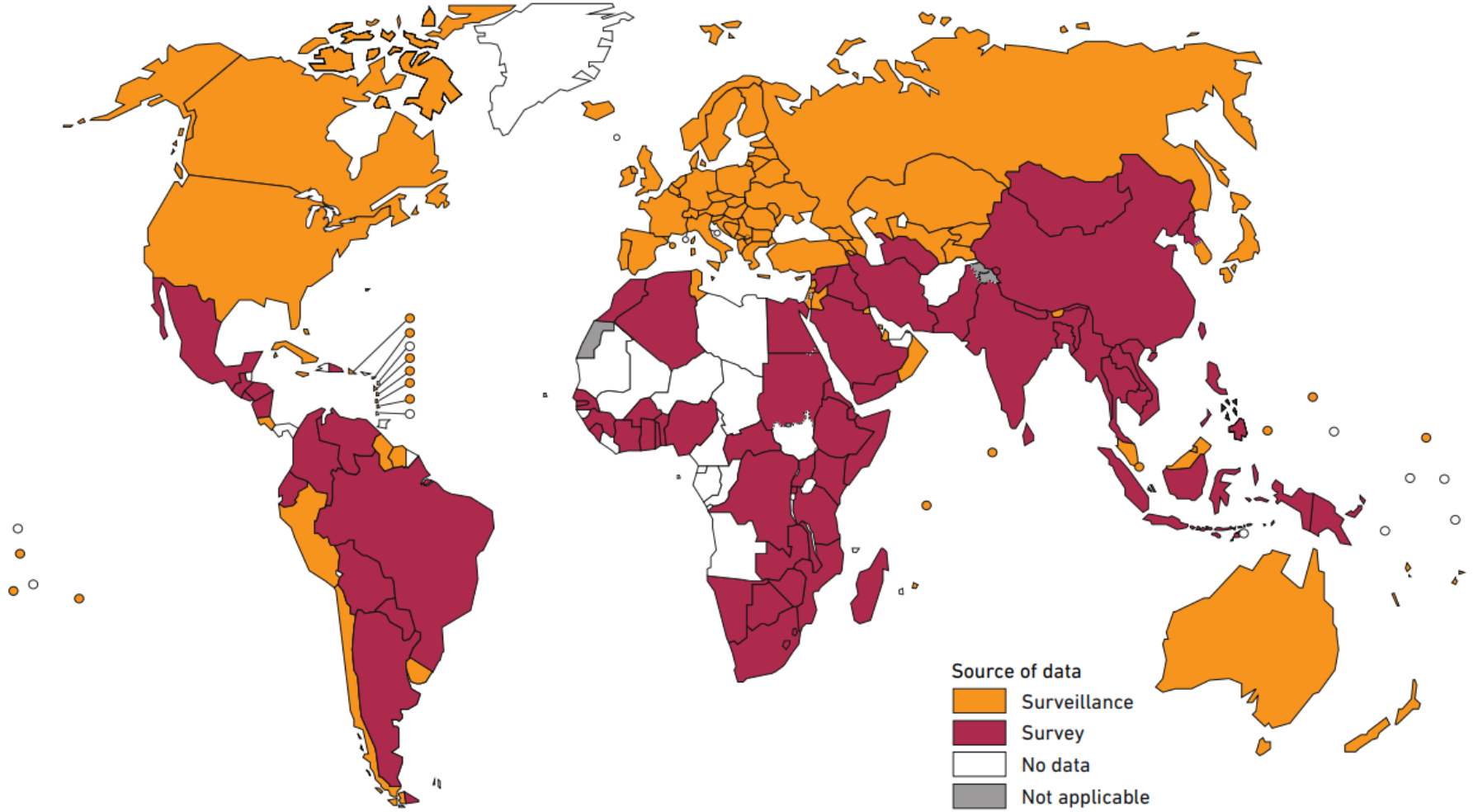
DR data sources

Surveys

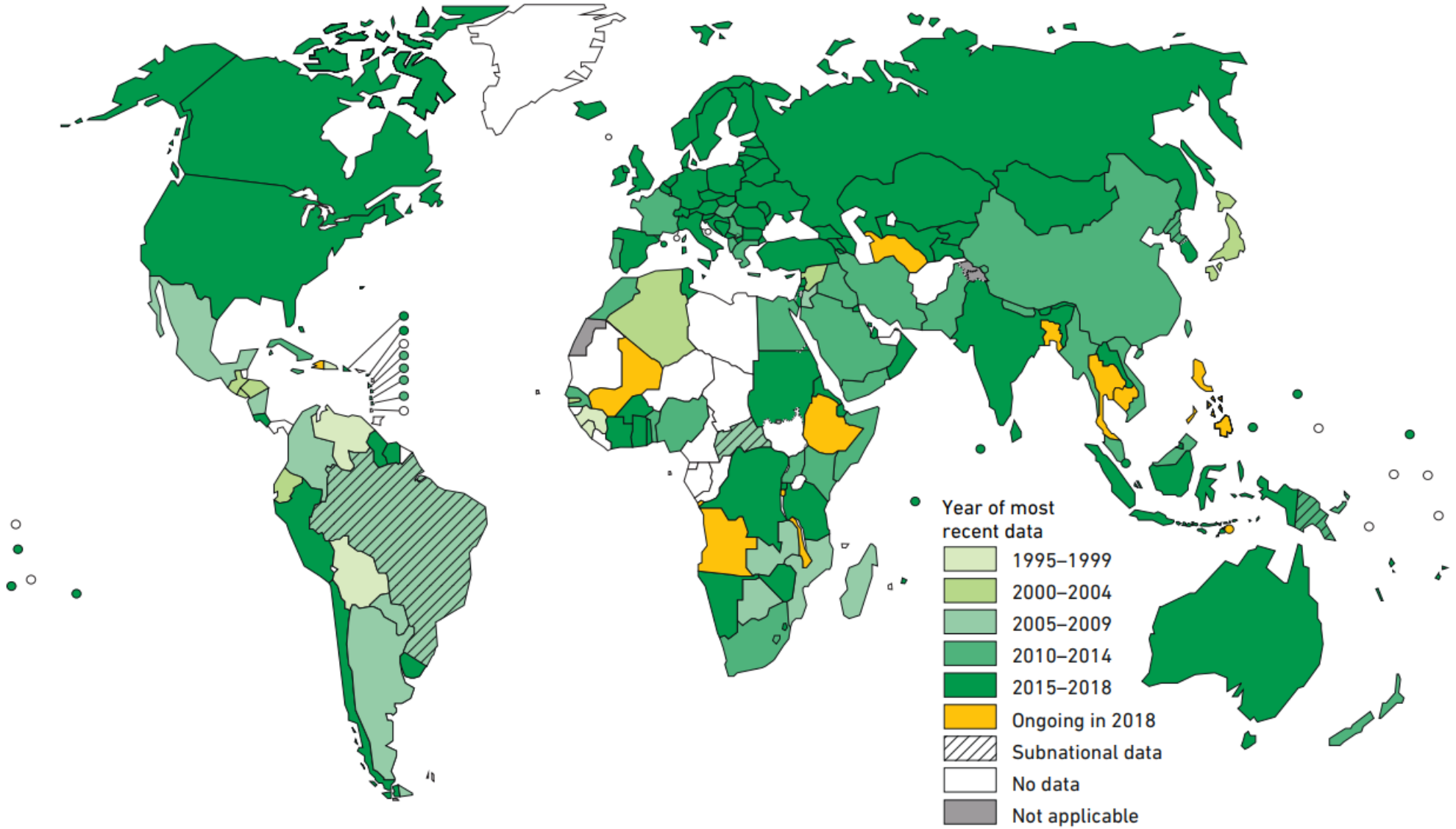
- cluster sampling
- account for design effects on estimates
- MI of missing data

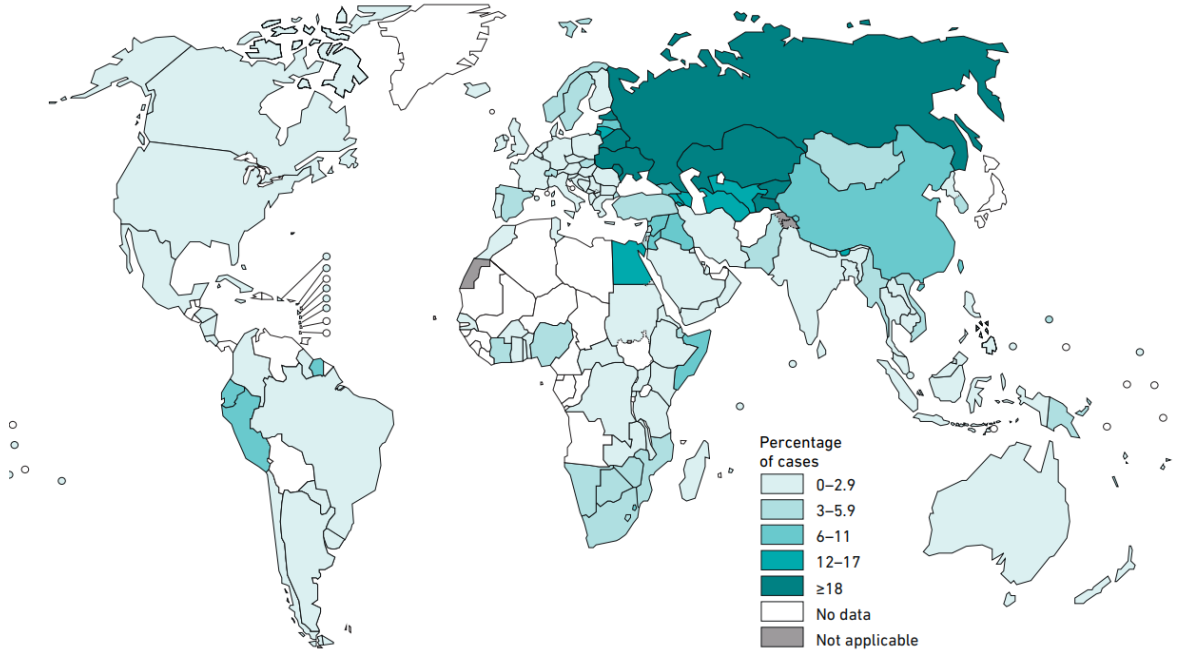
Surveillance

testing coverage ≥80% of notified B+ cases



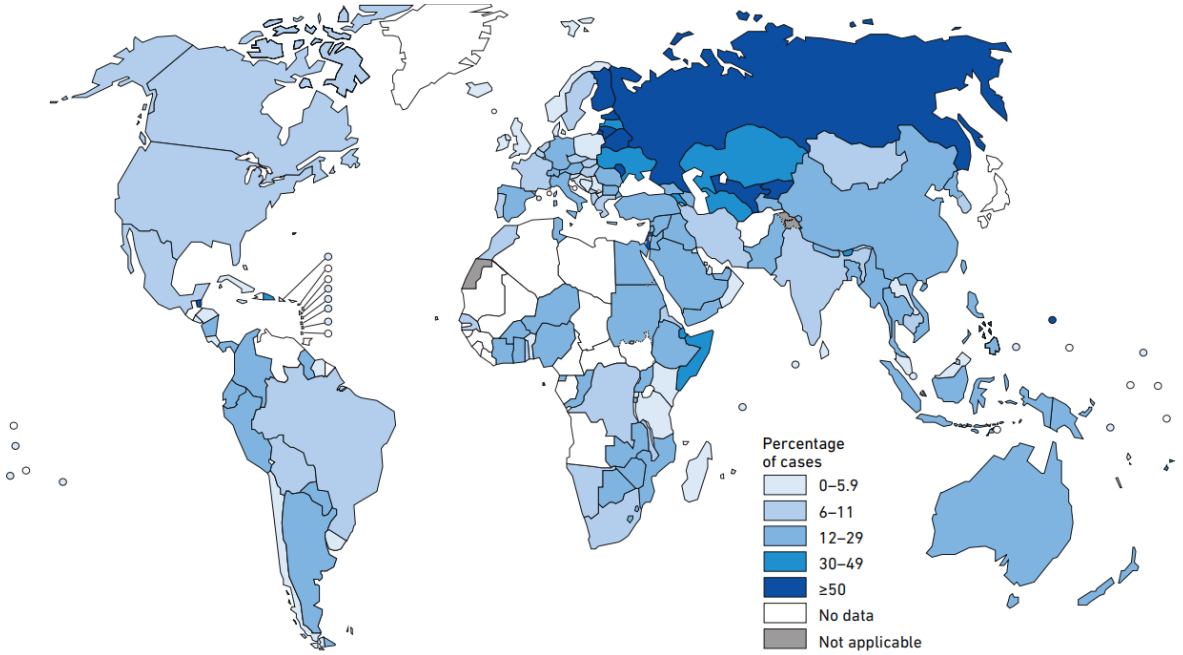
Coverage


Year of most recent data
1995–1999
2000–2004
2005–2009
2010–2014
2015–2018
Ongoing in 2018
Subnational data
No data
Not applicable



RR-TB in **new** cases (2017)

3.5 (2.5 - 4.7)%



RR-TB in **retreatment** cases (2017)

18 (6.3 - 34)%

MDR/RR-TB incidence

Overall incidence

do not fail nor default

Risk of RR

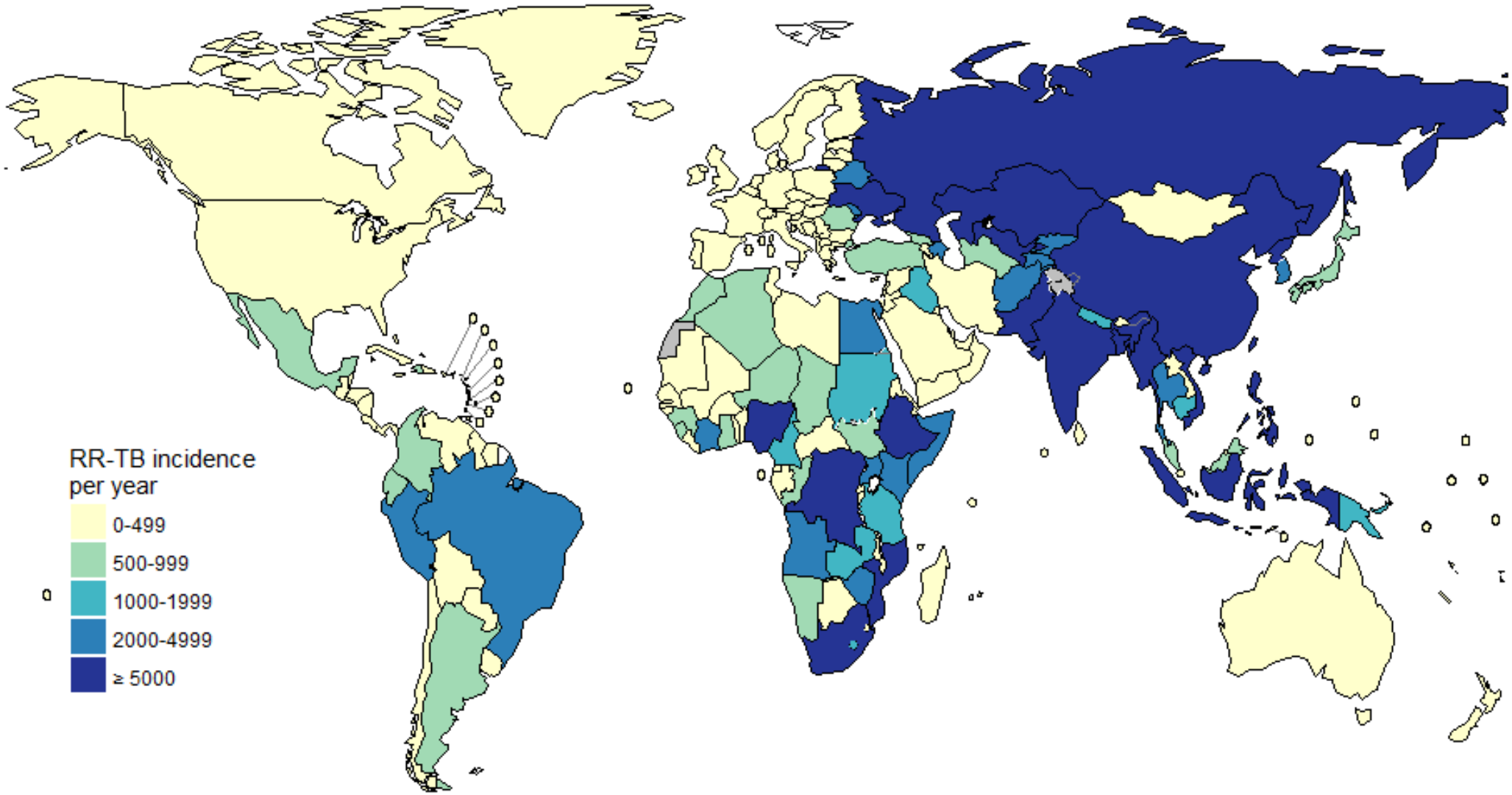
higher risk of RR in relapses

failures & default

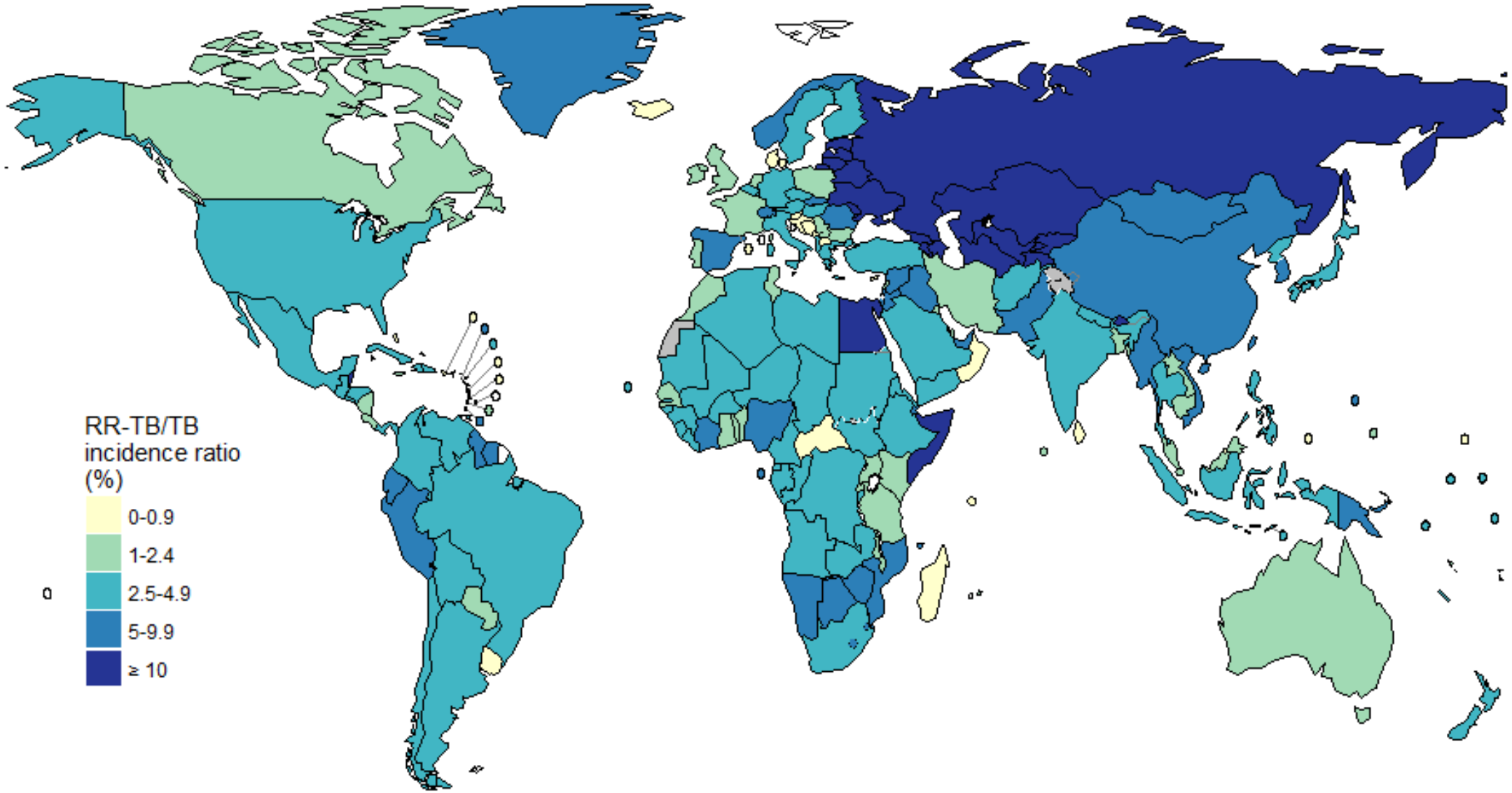
Risk of RR

$$I_{rr} = I\left[(1-f)p_n((1-r)+r\rho)+fp_r\right]$$

RR-TB incidence (2017)



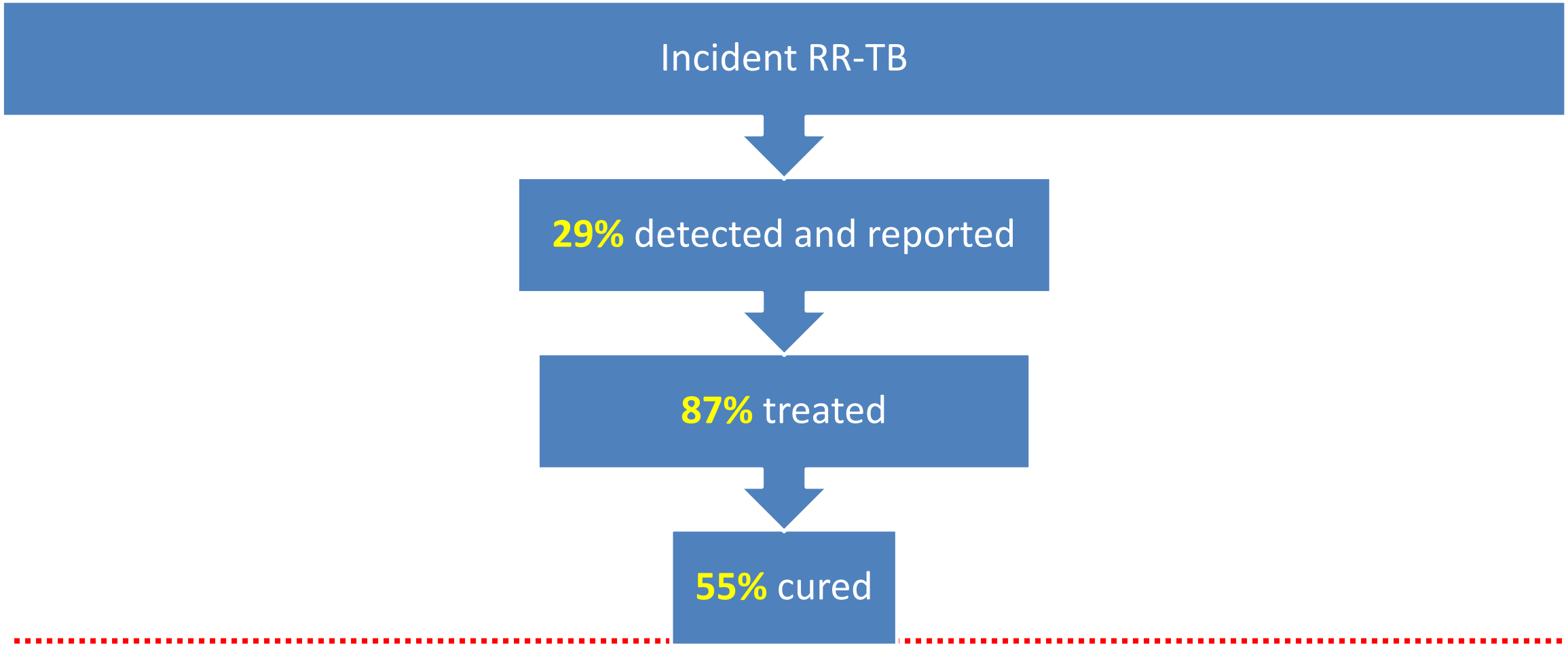
RR-TB / TB incidence ratio



Other key findings

- No strong evidence of increasing global MDR among TB in the past 10 years
- 82% of RR with MDR
- XDR: 113 countries with nationally representative data
- **8.5%** (6.2 – 11%) XDR among MDR
- No strong evidence of increasing global XDR among MDR

RR-TB care cascade



Selected modelling questions, in random order

- Why are RR-TB strains not taking over despite decades of pop exposure to rif?
- Where is the global RR-TB epidemic headed?
- Impact of containment and treatment?
- Dynamics of primary *vs* acquired RR-TB?
- Heterogeneity in effective contact rate: super spreaders? Risk factors?