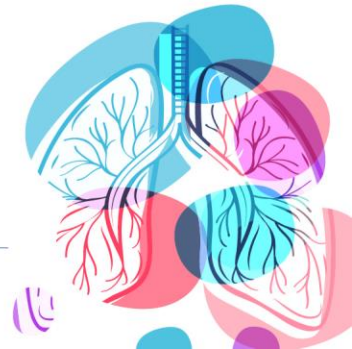




Epidemiologia della Tuberculosis in ambito comunitario e occupazionale

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Burden?
When?
Where?
How?

Descriptive

Risk factors?
RCTs & OSs

Analytical

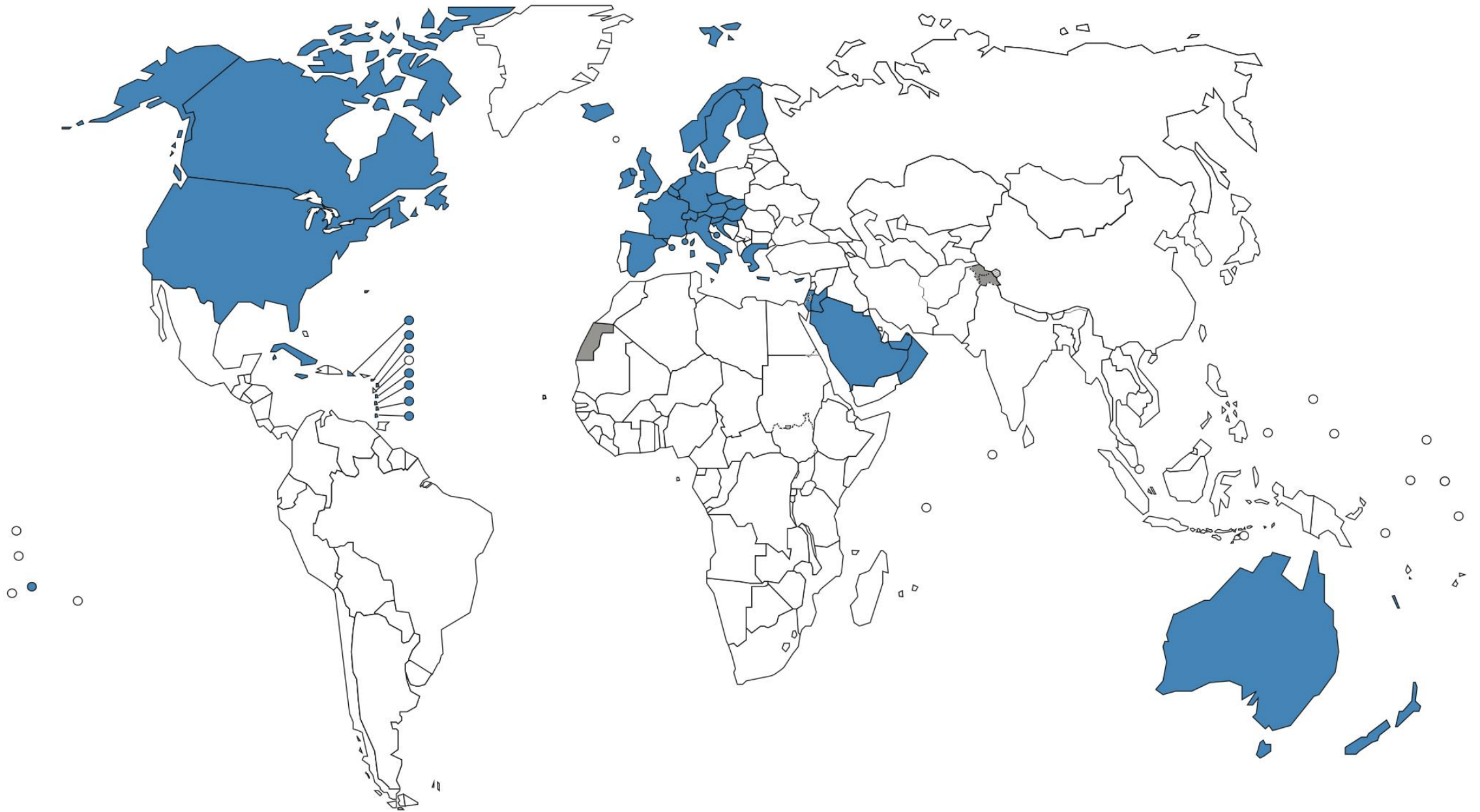
Epidemiology

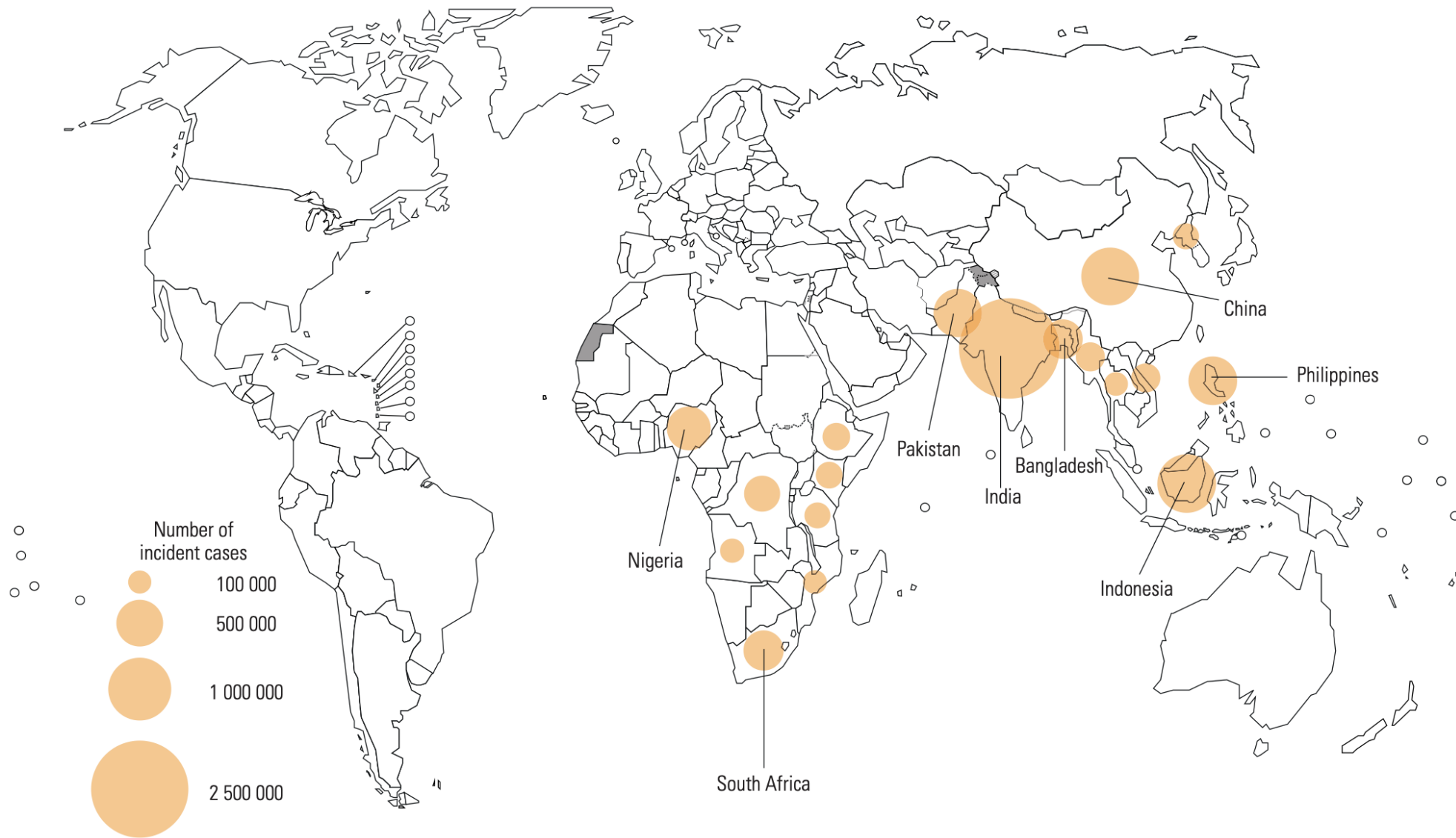
Interventions?
Policies?

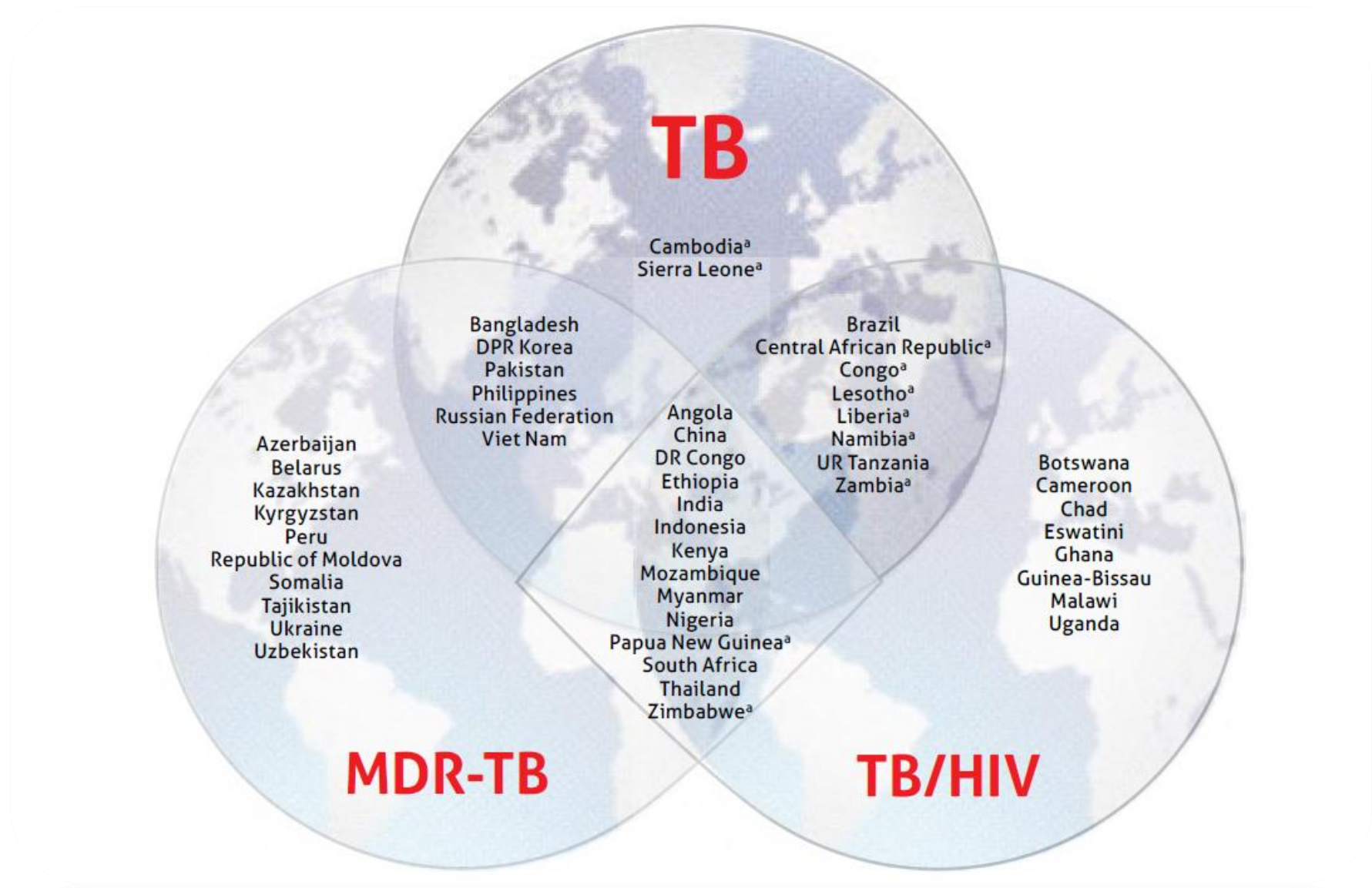
Evaluative

Global Burden

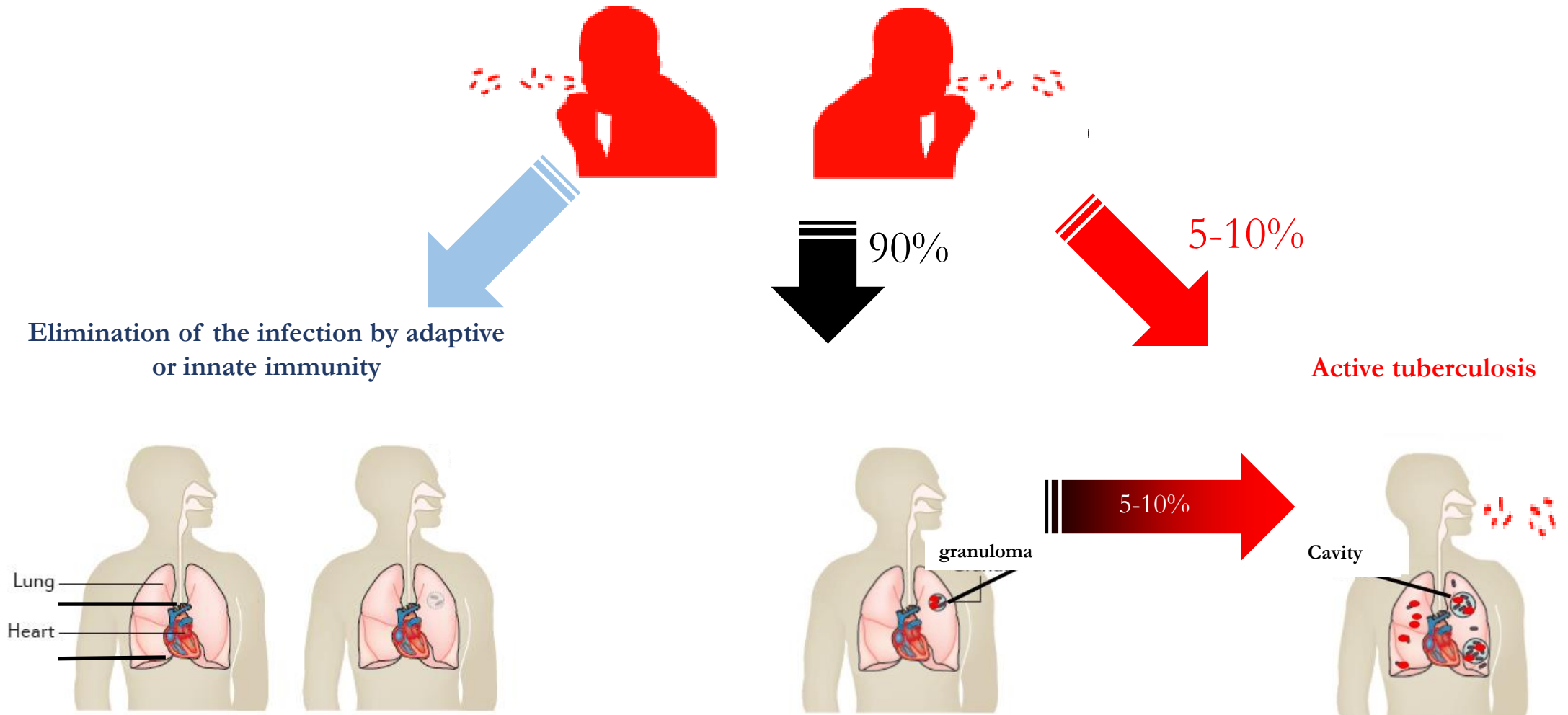
	Estimated no. of cases	Estimated no. of deaths
All forms of TB	10.0 million	1.4 million
HIV-associated TB	0.82 million (8.2%)	0.28 million
RR/MDR-TB	0.46 million	-



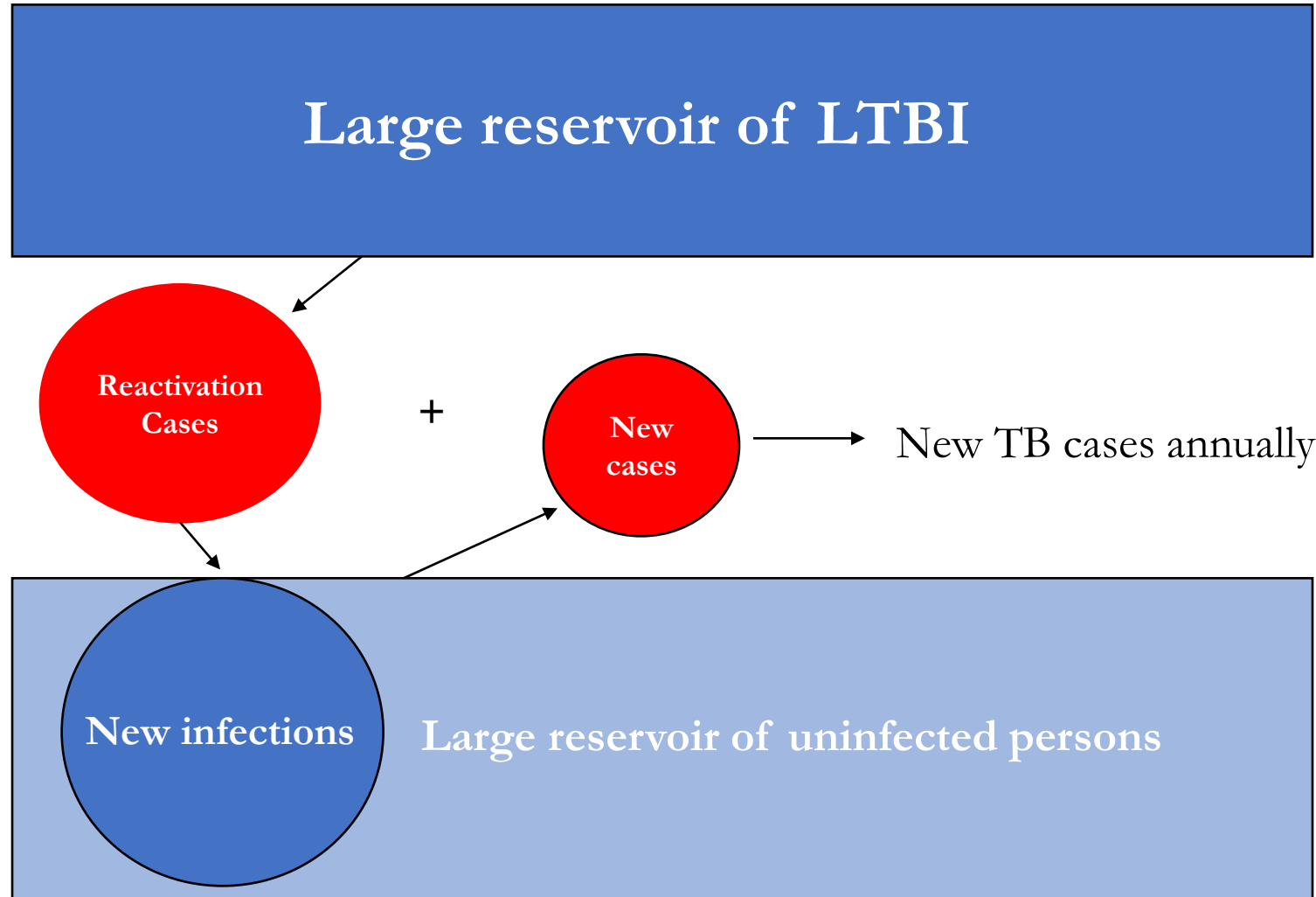




Natural history of tuberculosis



Tuberculosis Control Strategies



Population-Wide Mass LTBI Testing and Treatment

- Unfeasible
- ✓ *Imperfect tests;*
- ✓ *Risk of serious and fatal side-effects;*
- ✓ *High cost.*
- **Benefits > harms in population groups at risk of TB disease**



Prevalence of LTBI

In 1997

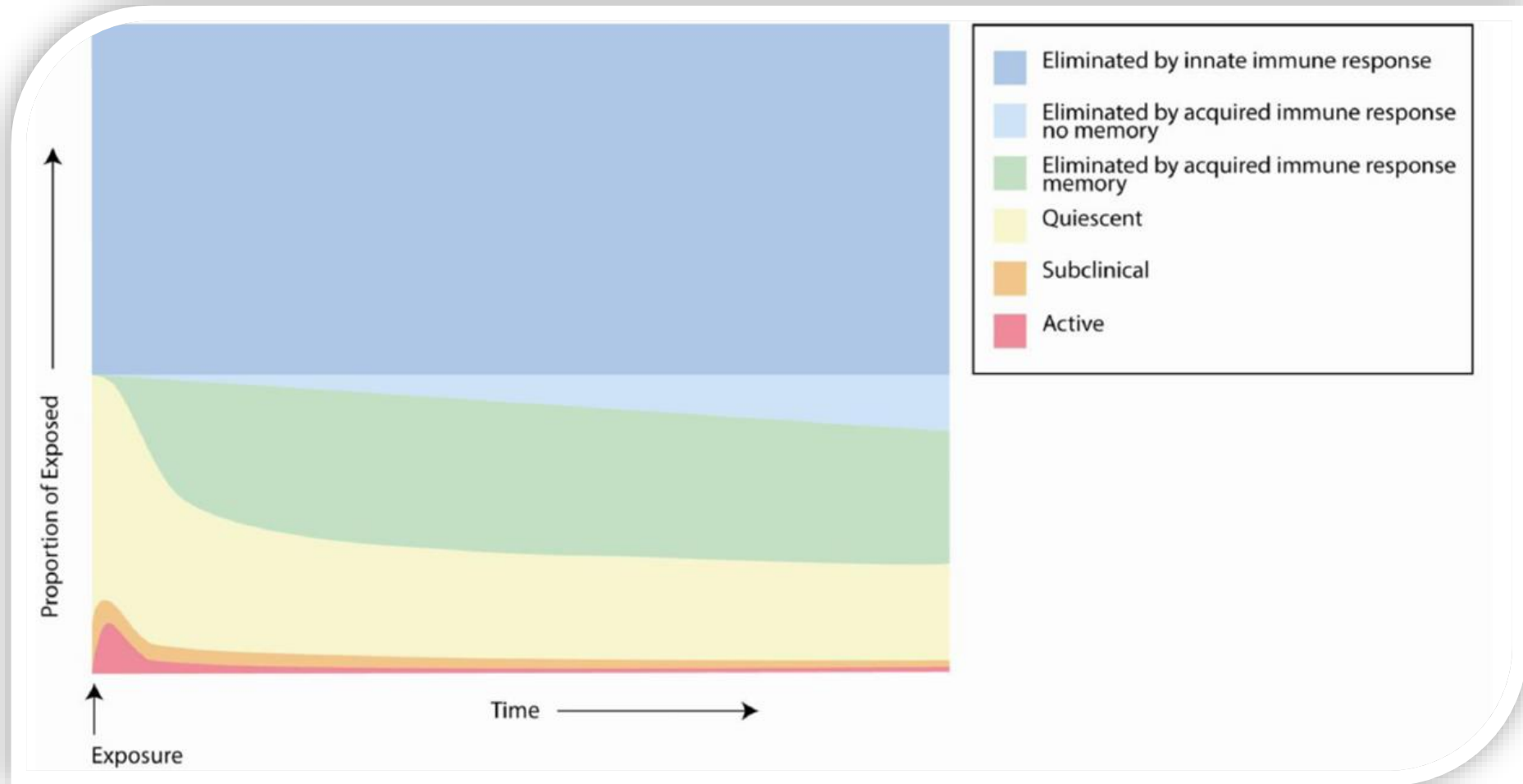
- ✓ 1.86 billion;
- ✓ Global prevalence: 32 %.

In 2014

WHO region	All LTBI	
	Prevalence (%)	Proportion of infections in children <15 y (%)
AFR	22.4 [20.6–24.6]	13.3 [11.8–14.6]
AMR	11.0 [7.0–20.0]	2.3 [1.3–3.7]
SEA	30.8 [28.3–34.8]	7.4 [6.3–8.2]
EMR	16.3 [13.4–20.5]	7.9 [6.0–9.4]
WPR	27.9 [19.3–40.1]	2.4 [1.7–3.5]
EUR	13.7 [9.8–19.8]	2.0 [1.3–2.7]
GLOBAL	23.0 [20.4–26.4]	5.9 [5.1–6.7]

Lifetime Risk for Active TB Disease

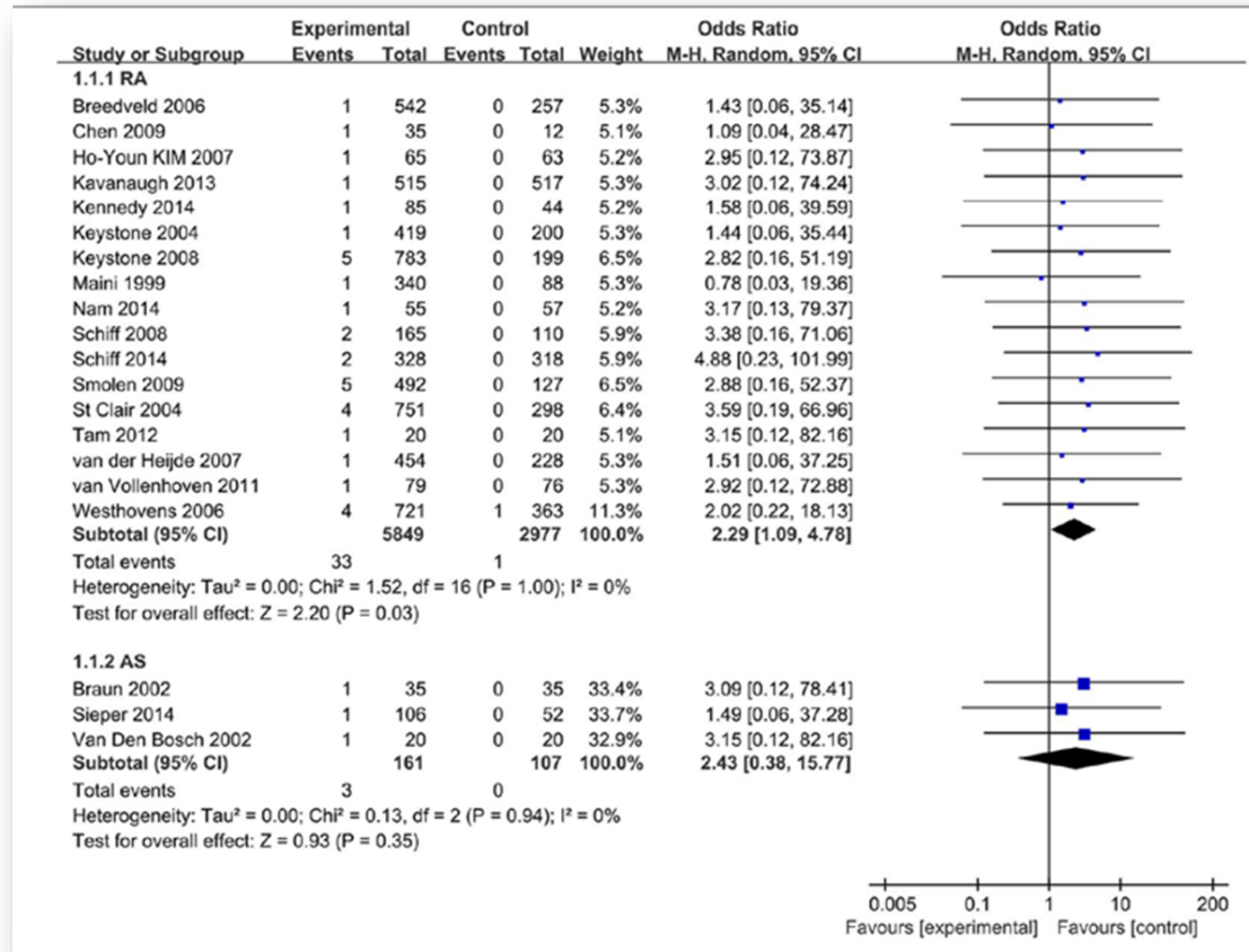
5–15% with **LTBI** during their lifetime develop TB (first 2–5 yrs)



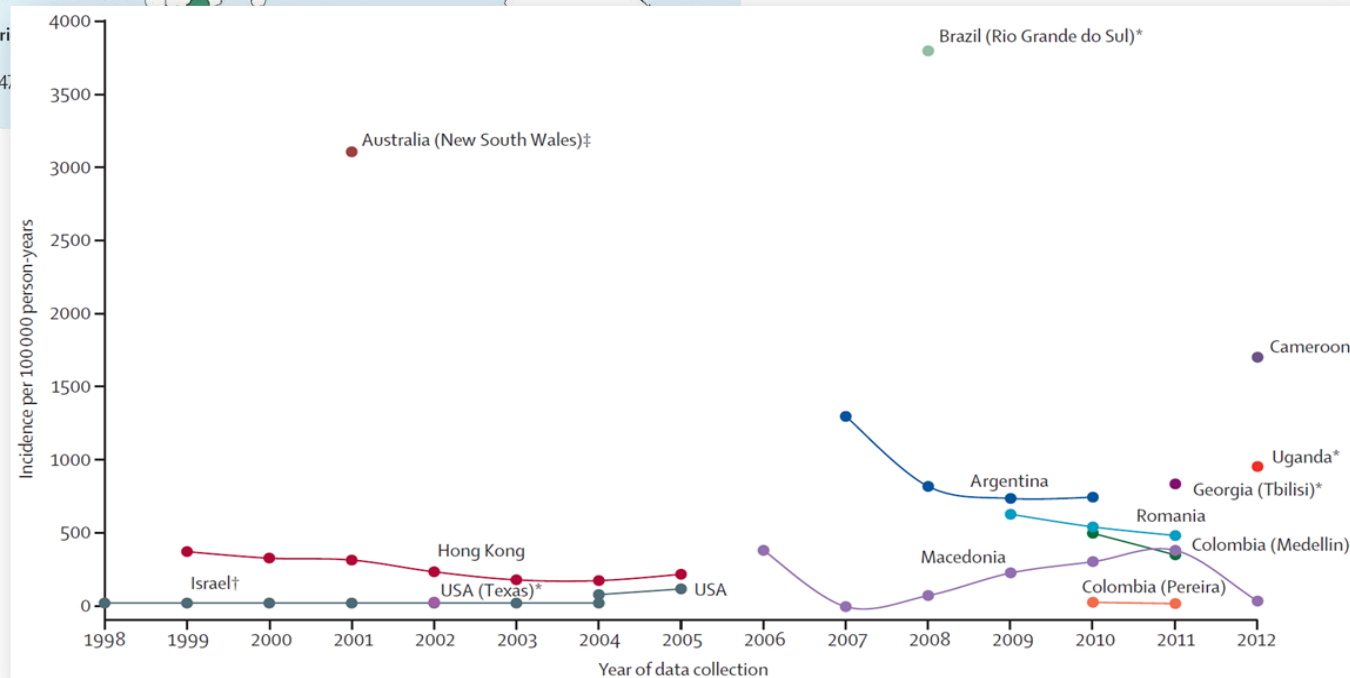
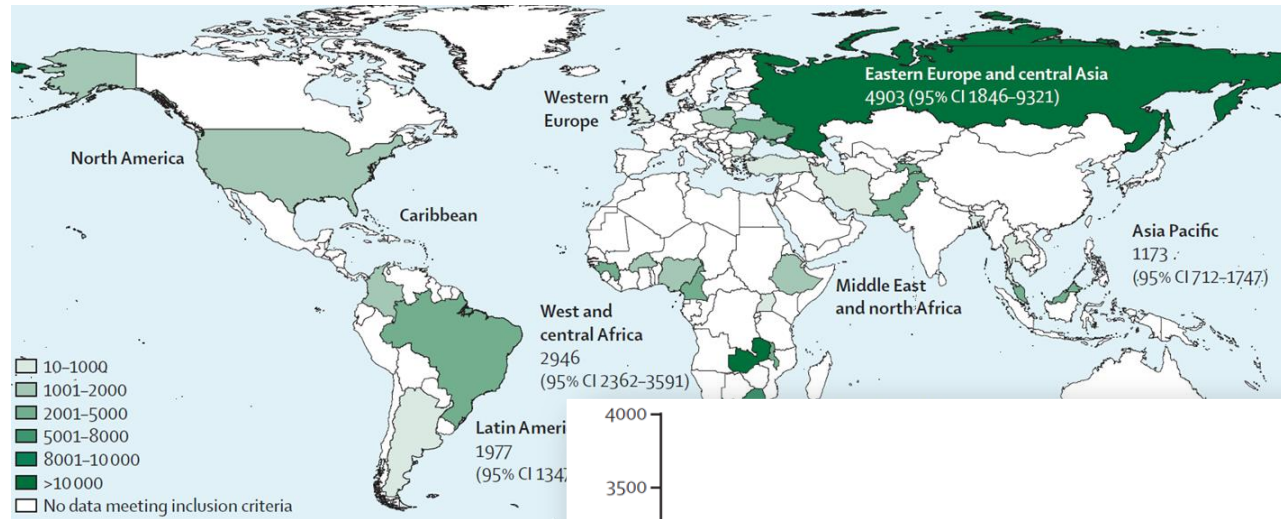
Prevalence of LTBI in High-Risk Groups

High-Risk Group	Incidence of Active Tuberculosis <i>median rate per 1000 population (range)</i>	Prevalence of Latent Tuberculosis Infection [†]		
		QuantiFERON-TB Gold In-Tube	T-SPOT.TB	Tuberculin Skin Test
		<i>median percentage (range)</i>		
Persons with HIV infection	16.2 (12.4–28.0)	14.5 (2.7–21.5)	11.3 (4.3–67.6)	19.2 (2.1–54.8)
Adult contacts of persons with tuberculosis	0.6 [‡]	21.1 (6.6–55.1)	48.0 (29.6–59.6)	26.3 (1.8–82.7)
Patients receiving tumor necrosis factor blockers	1.4 ^{‡§}	11.8 (4.0–22.3)	20.0 (12.9–25.0)	18.6 (11.3–68.2)
Patients undergoing hemodialysis	26.6 (1.3–52.0)	33.4 (17.4–44.2)	43.6 (23.3–58.2)	21.9 (2.6–42.1)
Patients undergoing organ transplantation	5.1 [‡]	21.9 (16.4–23.5)	29.5 (20.5–38.5)	7.7 (4.4–21.9)
Patients with silicosis	32.1 [‡]	46.6 [‡]	61.0 [‡]	—
Prisoners	2.6 (0.03–9.8)	—	—	45.5 (23.1–87.6)
Health care workers	1.3 (0.4–4.1)	14.1 (0.9–76.7)	5.2 (3.5–28.7)	29.5 (1.4–97.6)
Immigrants from countries with a high tuberculosis burden	3.6 (1.3–41.2)	30.2 (9.8–53.8)	17.0 (9.0–24.9)	39.7 (17.8–55.4)
Homeless persons	2.2 (0.1–4.3)	53.8 (18.6–75.9)	—	45.6 (20.5–79.8)
Illicit-drug users	6.0 [‡]	63.0 (1.4–66.4)	45.8 (34.1–57.5)	85.0 (0.3–86.7)
Elderly persons	—	16.3 [‡]	—	31.7 [‡]

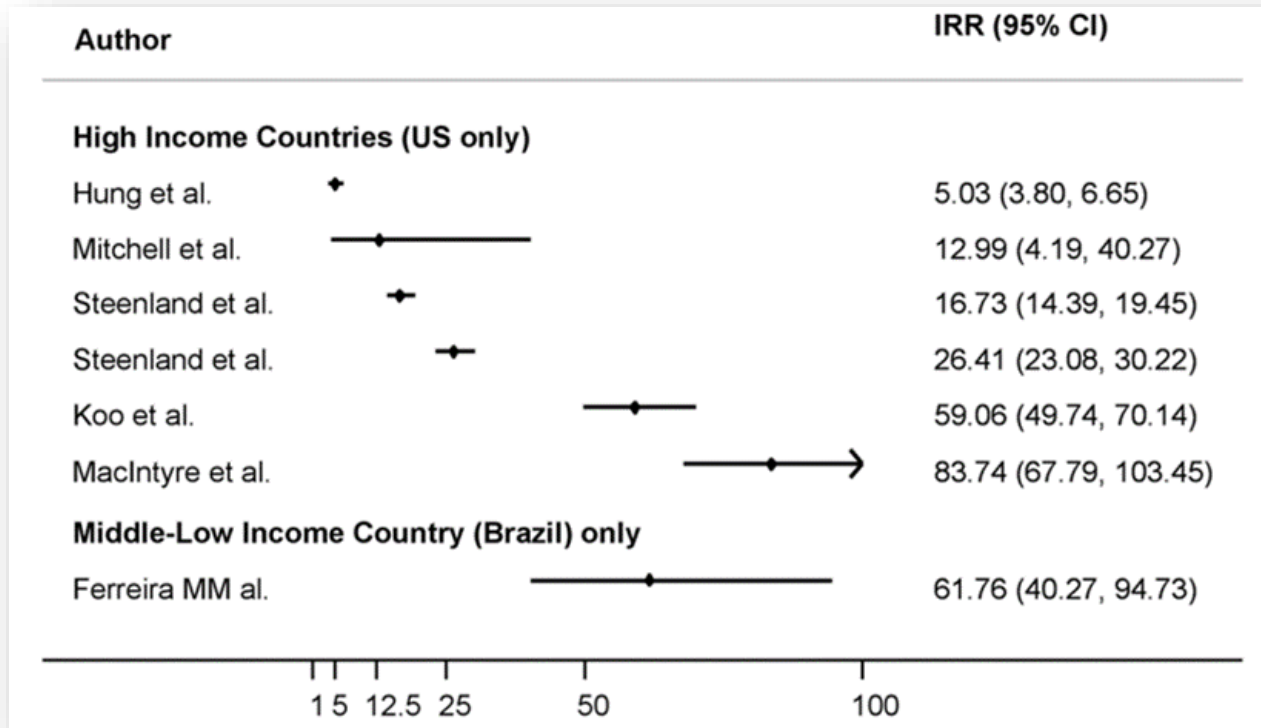
Exposed to anti-TNF α



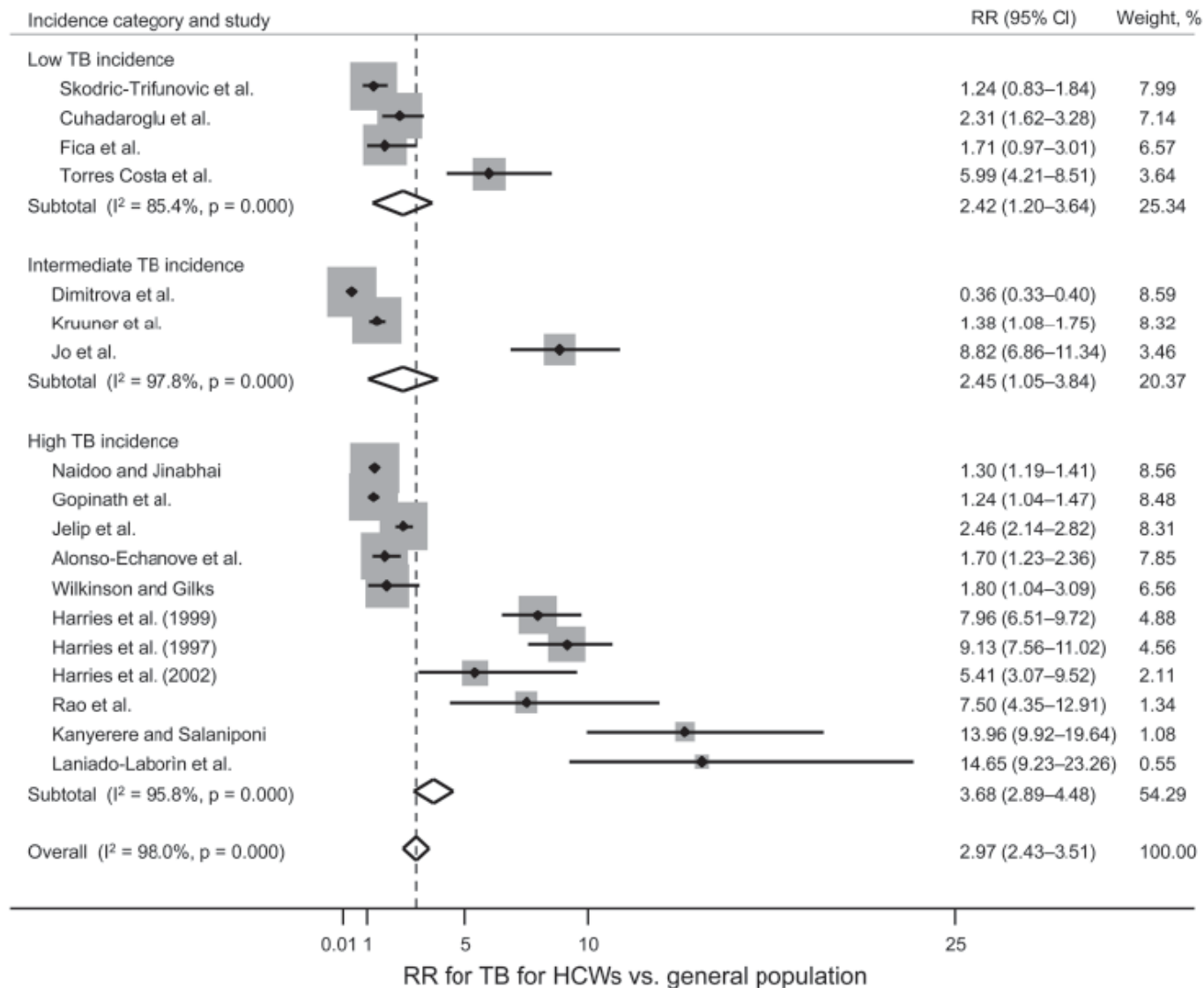
Inmates



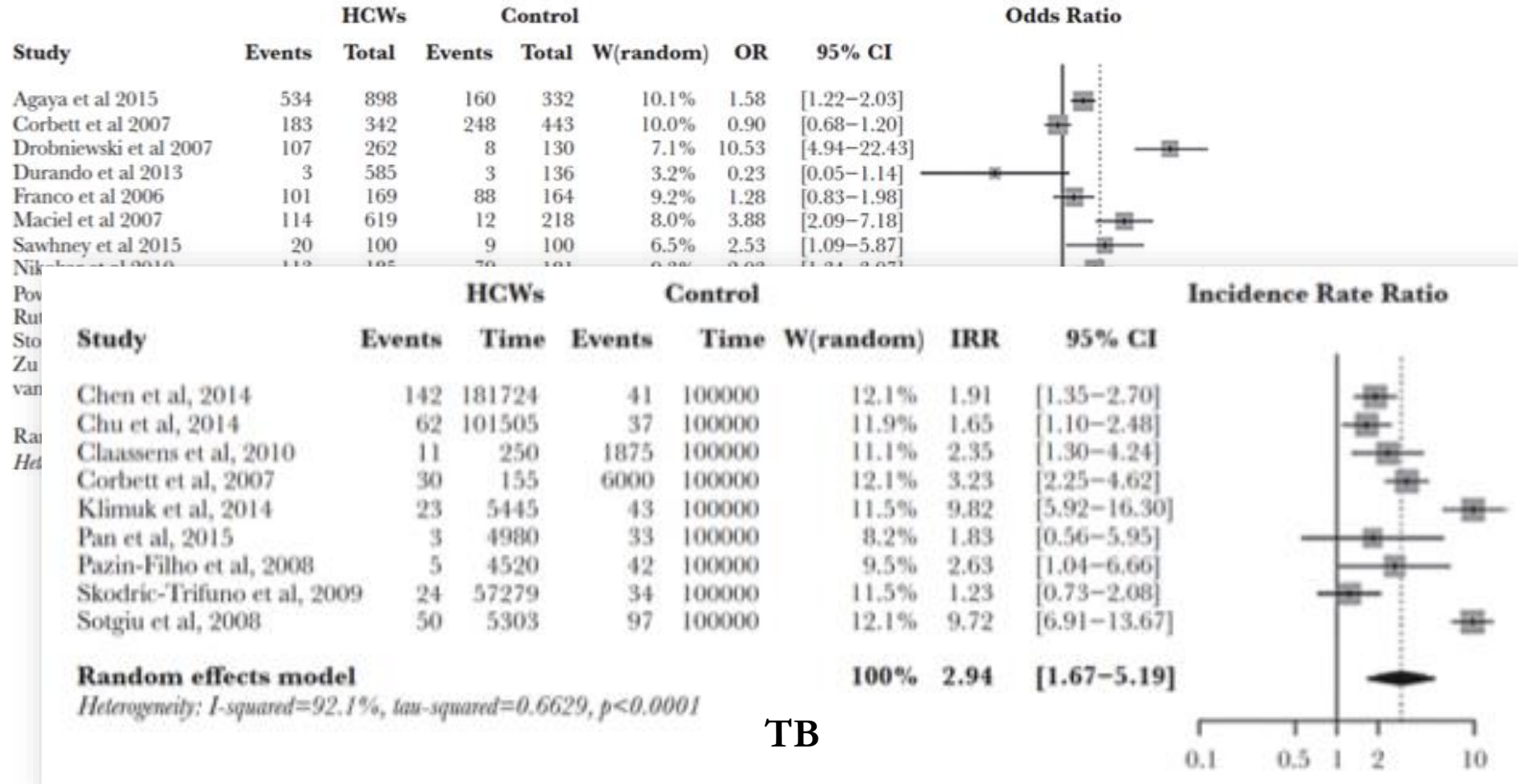
Inmates



Healthcare Workers

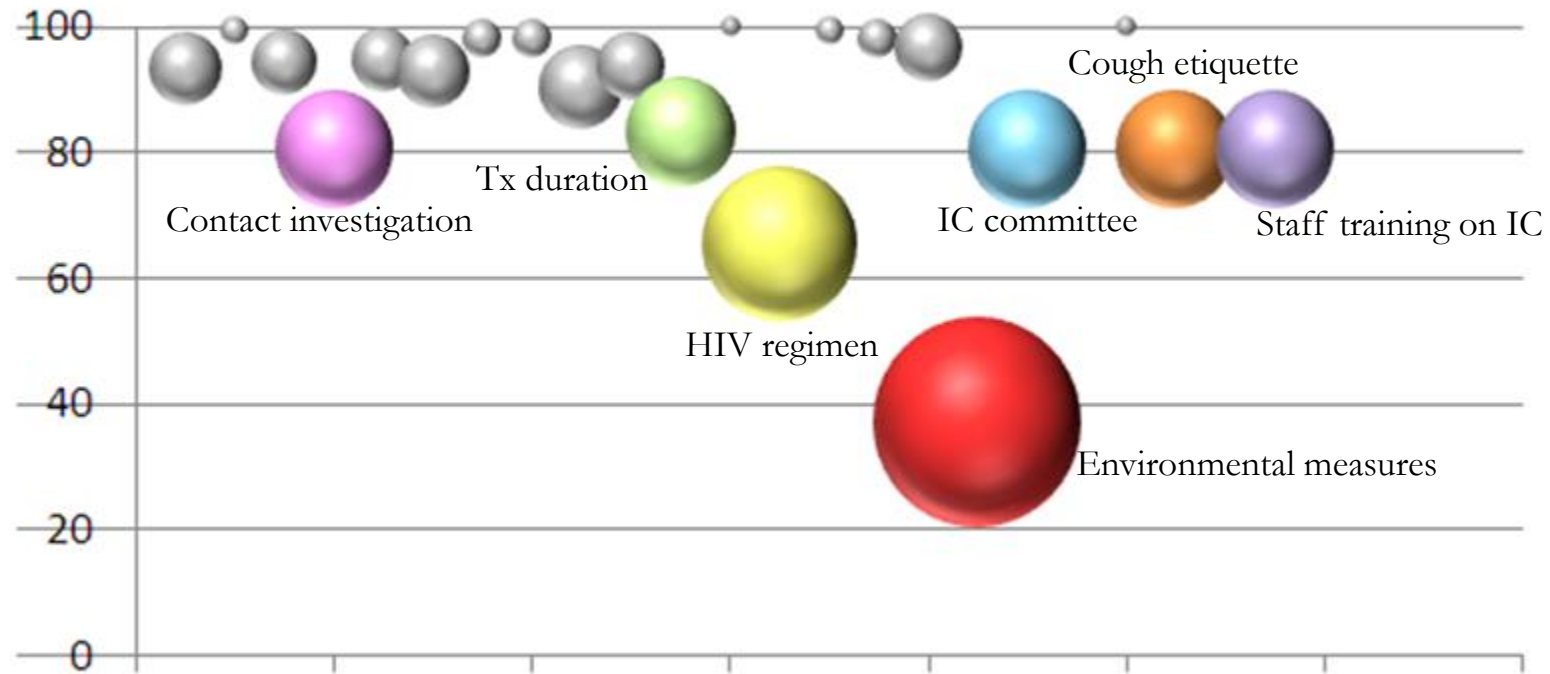


HCWs

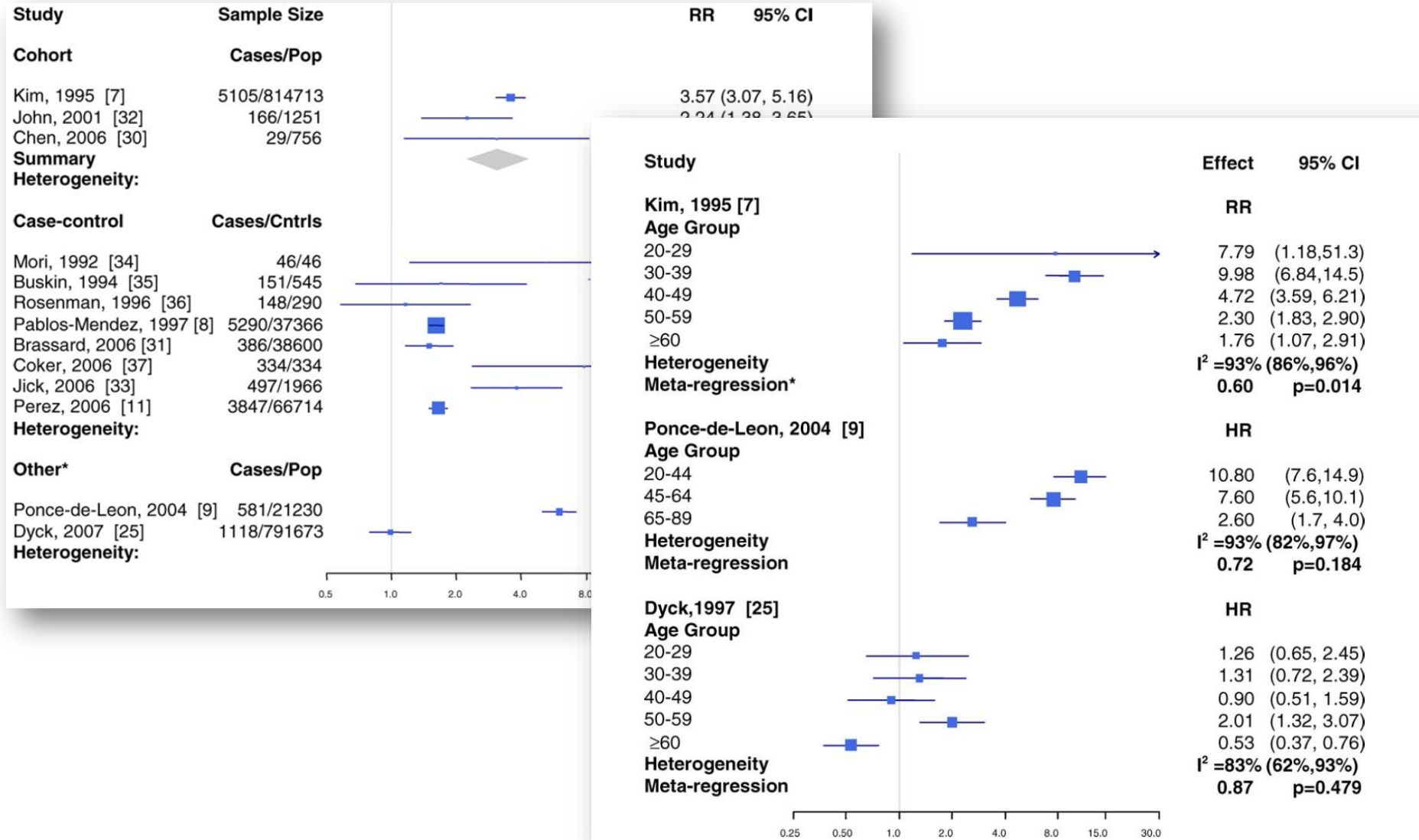


TB

ECDC/ERS Survey



.....Diabetes Mellitus



Migrants

Individual factors

- ✓ Overcrowded living and poor working conditions
- ✓ Low socio-economic status
- ✓ Increased vulnerability to HIV infection
- ✓ Under/malnutrition
- ✓ Substance abuse

Social Barriers

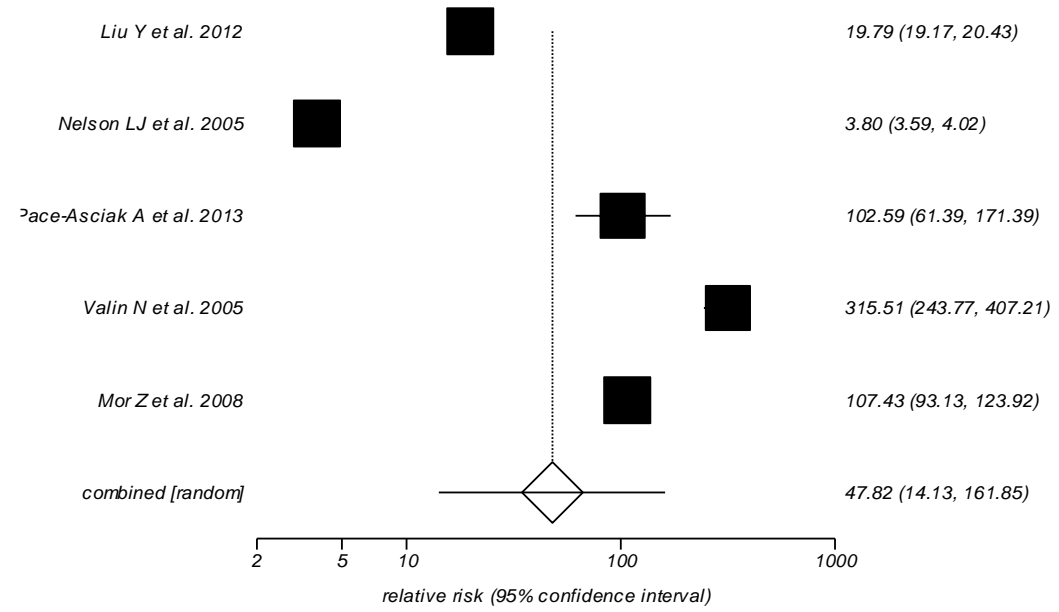
- ✓ Language, cultural beliefs, legal rights
- ✓ Immigration status
- ✓ Anti-migrant sentiments
- ✓ Lack of awareness of entitlement to health services
- ✓ Low health-related spending capacity
- ✓ Migrant-unfriendly health services

Economic burden of illness

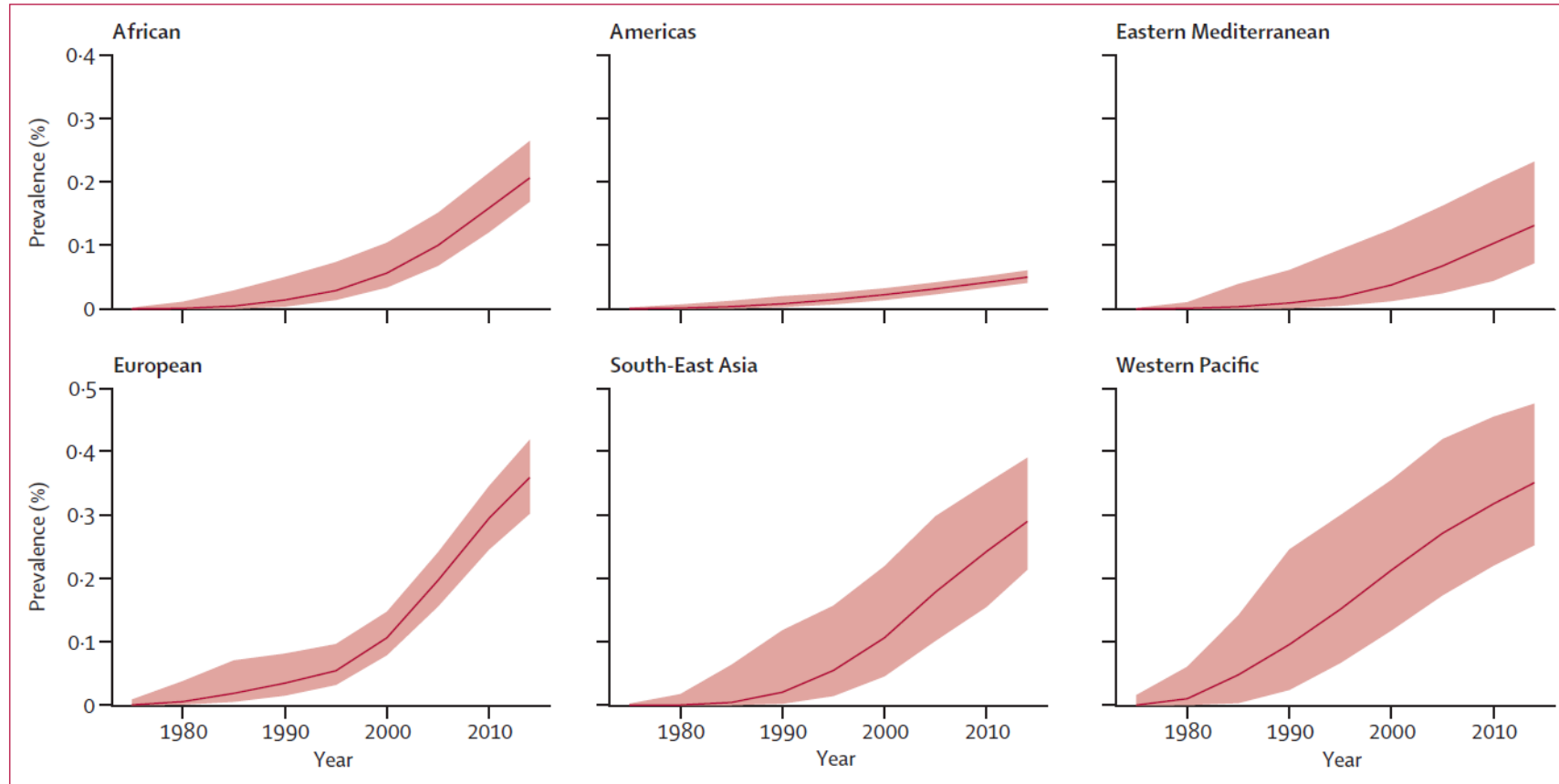
- ✓ At household level- costs of care and income loss for migrants and their families.
- ✓ At government level - costs to health systems.
- ✓ At societal level - loss of productivity and revenue



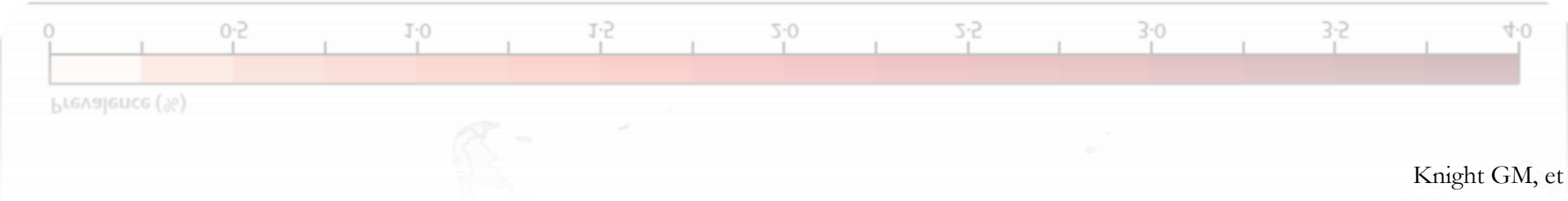
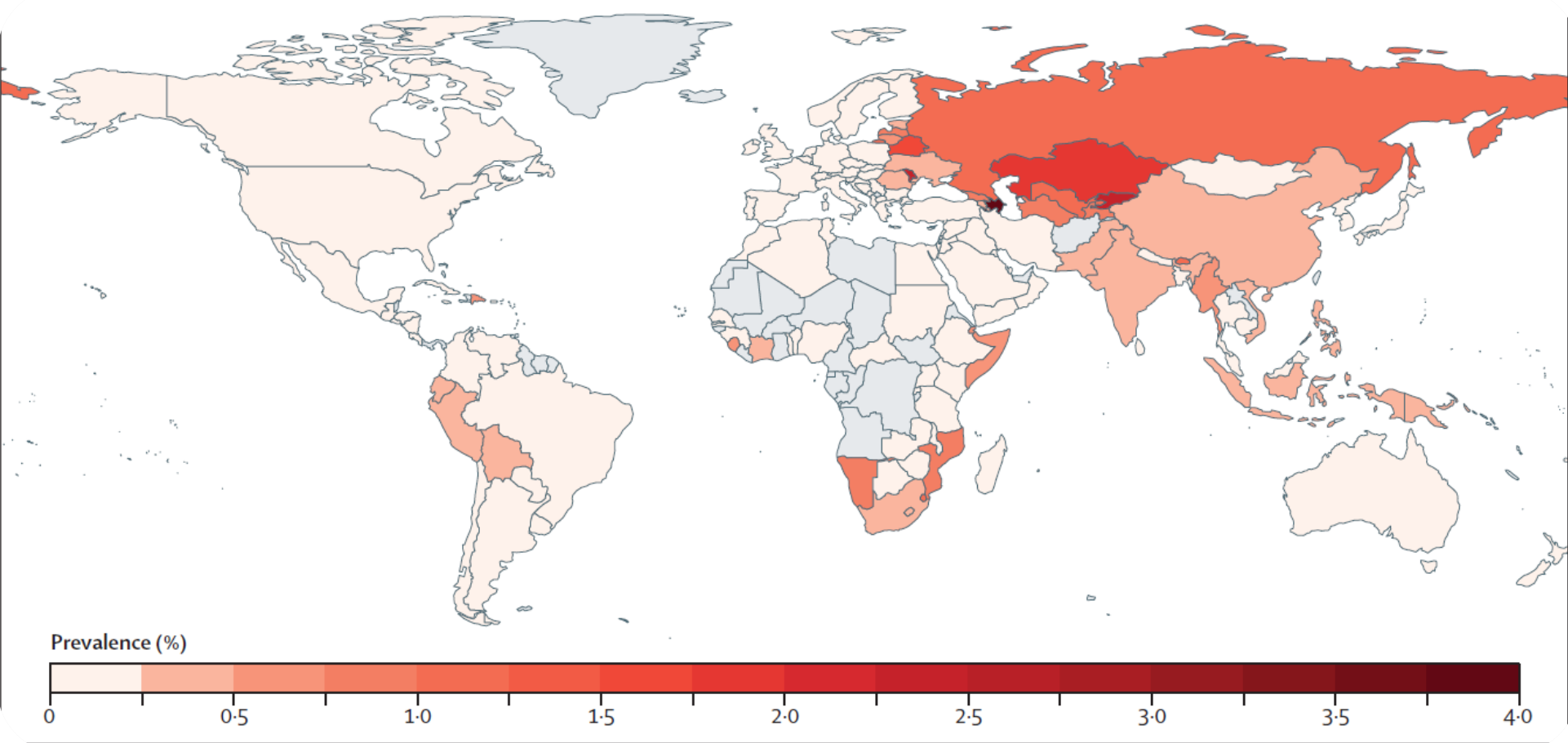
Migrants



Prevalence of latent MDR-TB infection

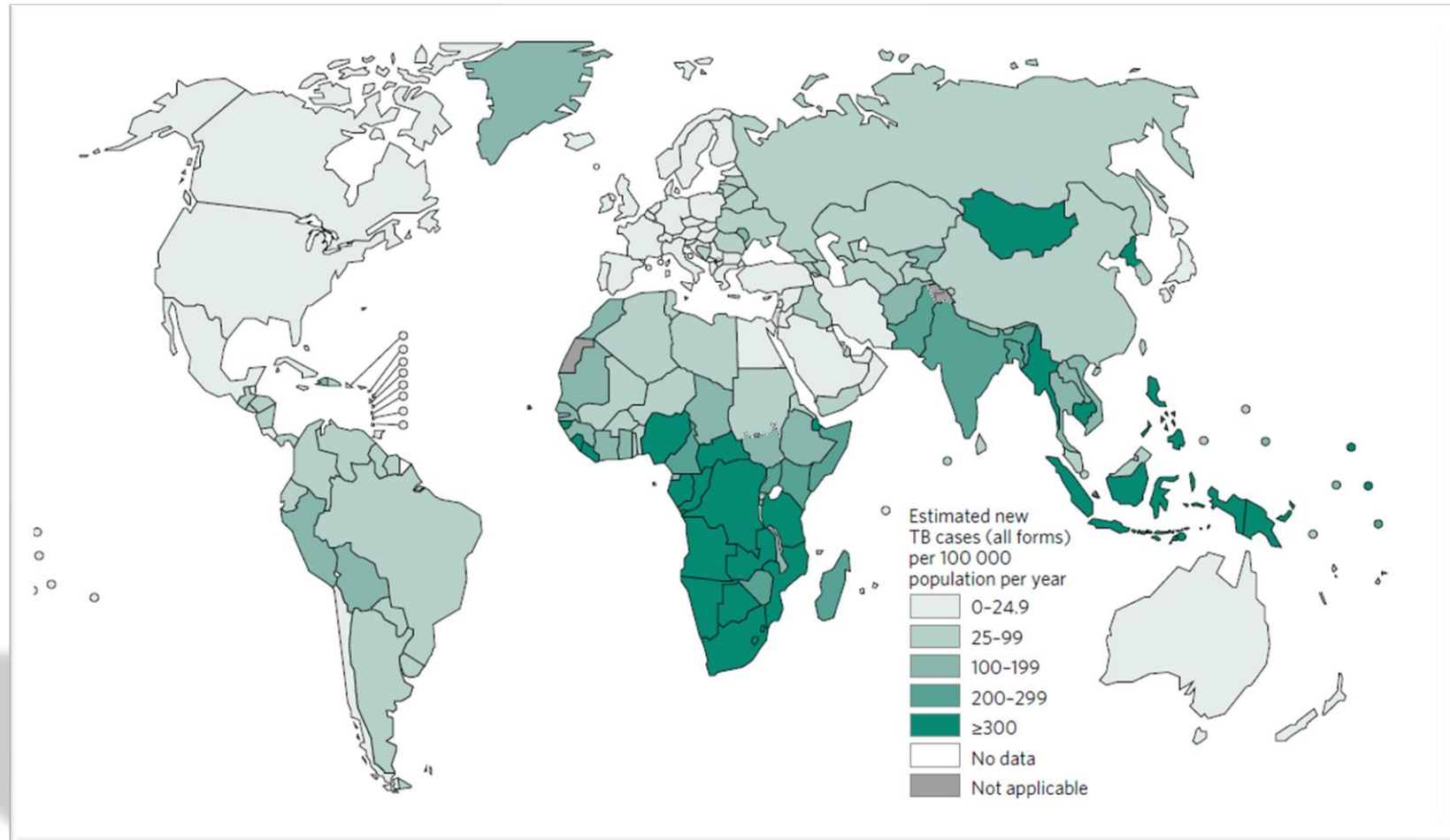


Prevalence of latent MDR-TB infection



Low TB Incidence Countries

Notification rate: <100 cases (all forms) per million population

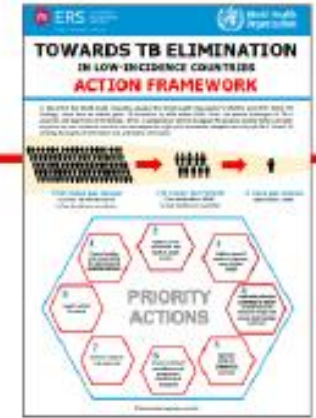


TB Epi in Low-Incidence Countries

- ✓ Low rate of transmission in the general population, occasional outbreaks.
- ✓ Majority of TB cases generated from progression of LTBI.
- ✓ Concentration in vulnerable and hard-to-reach risk groups.
- ✓ Significant contribution to TB rates from cross-border migration.
- ✓ Changes in age distribution (elderly in the non-foreign-born population).

TB elimination strategy in low TB incidence countries

Targets



<10/100,000



<1/100,000



<0.1/100,000

Eradication of tuberculosis: will it be feasible?

-504-

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PUBLIC HEALTH SERVICE
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OCCASIONAL SURVEY

THE ERADICATION OF TUBERCULOSIS: THEORETICAL PROBLEMS
AND PRACTICAL SOLUTIONS

By GEORGES CANETTI

from the Institut Pasteur, Paris

with GEORGE CHALLINOR

with LEONARD BLOOM



"The possibility of eradicating tuberculosis in a country is essentially a function of its economic level...

...There are three major weapons which can be used in a policy of eradication: chemotherapy, vaccination, and chemoprophylaxis....

...In realising this objective, the developed countries can give developing ones considerable help"

