IHME
Measuring what matters

Data gaps as obstacles to elimination

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”Elimination as a public health problem is…defined by **achievement of measurable global targets**

-WHO Generic Framework For Control, Elimination and Eradication of Neglected Tropical Diseases

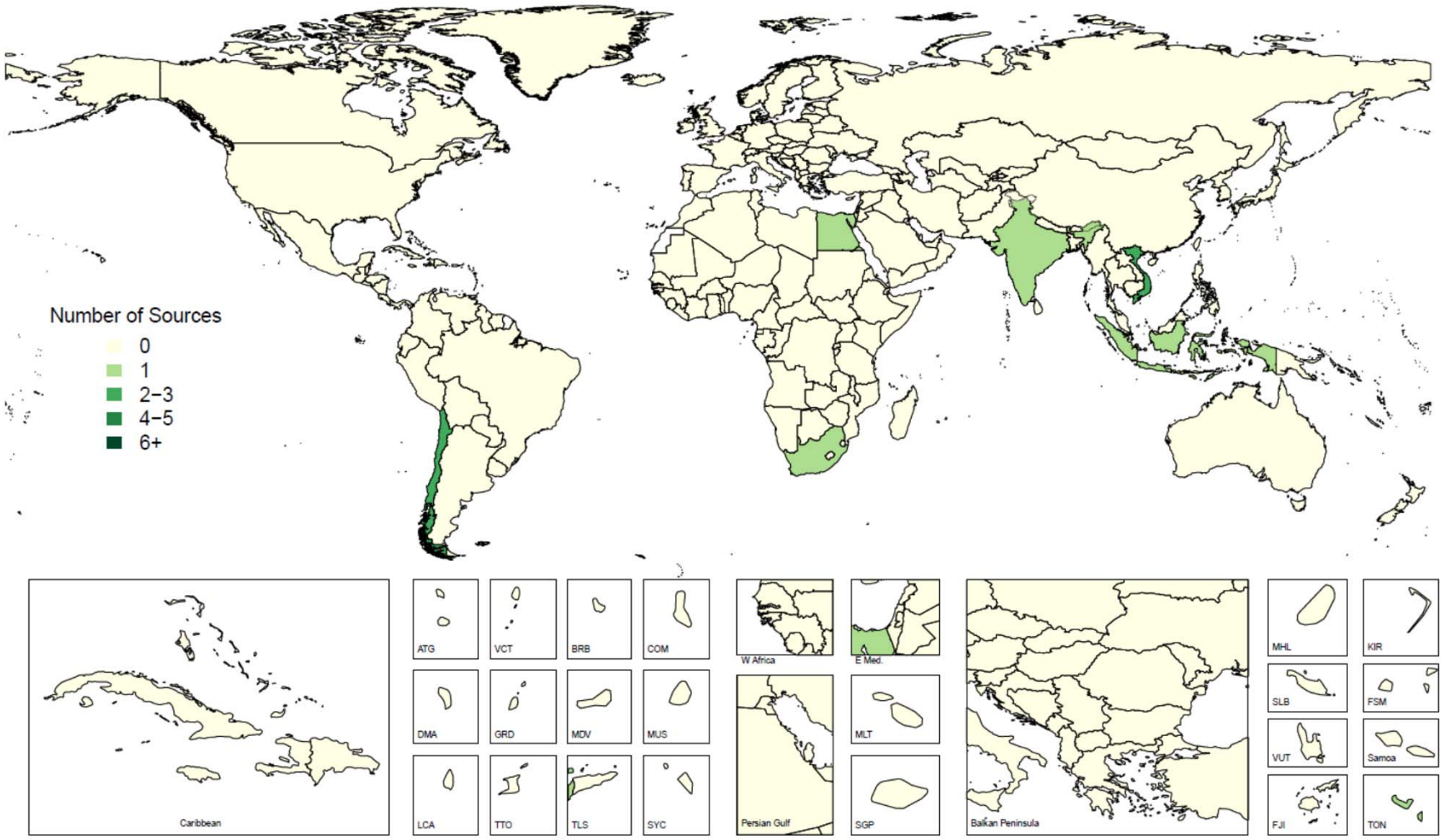
Data are essential to elimination

Elimination efforts require data to…

- Accurately estimate burden to persuade stake holders and motivate political will
- Characterize the spatial distribution to understand where to prioritize interventions
- Track progress
- Determine if/when we've achieved our targets and detect control failures

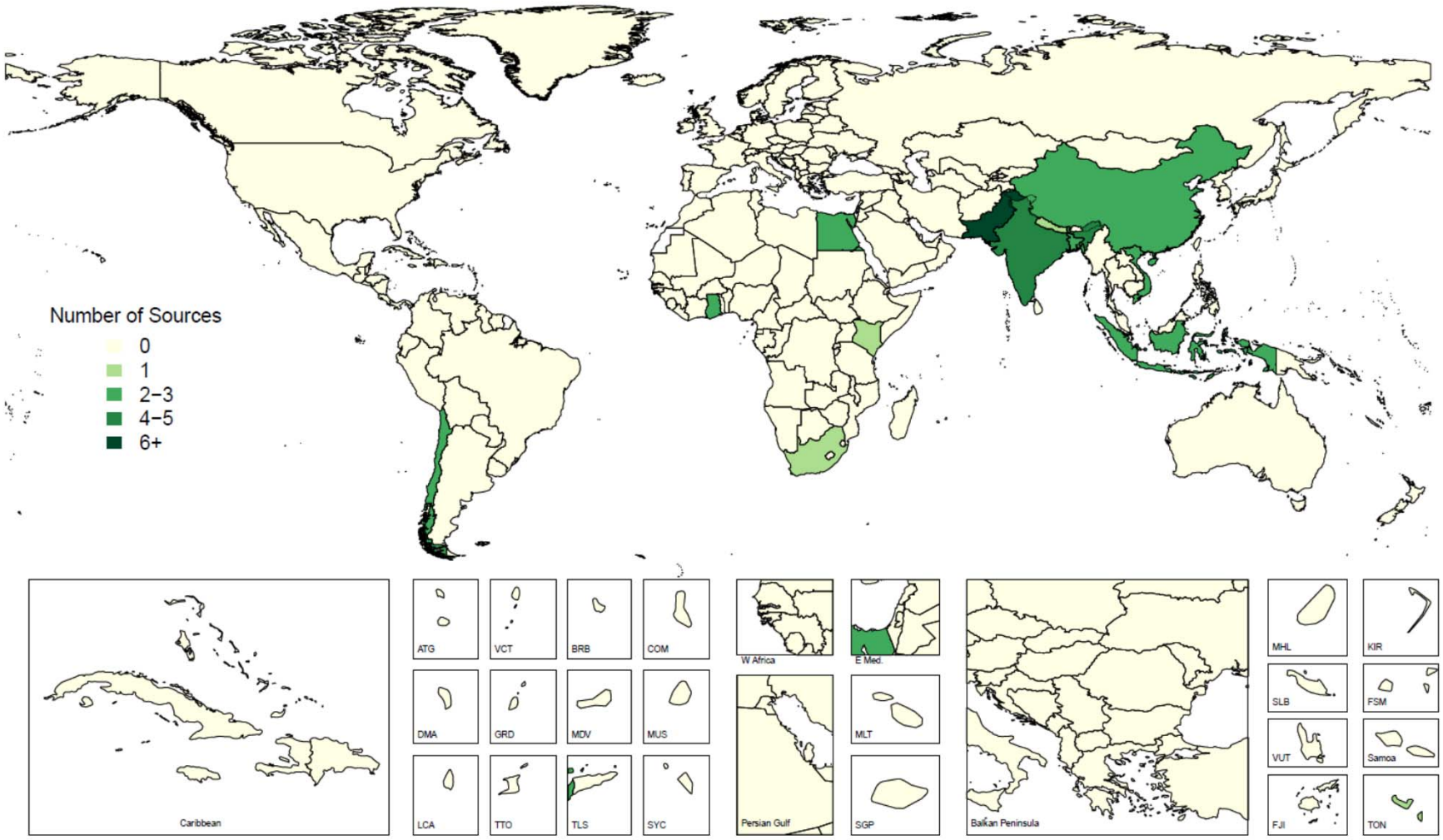
Published typhoid incidence data, 2000

Data available from a small number of vaccine trials and fever surveillance studies



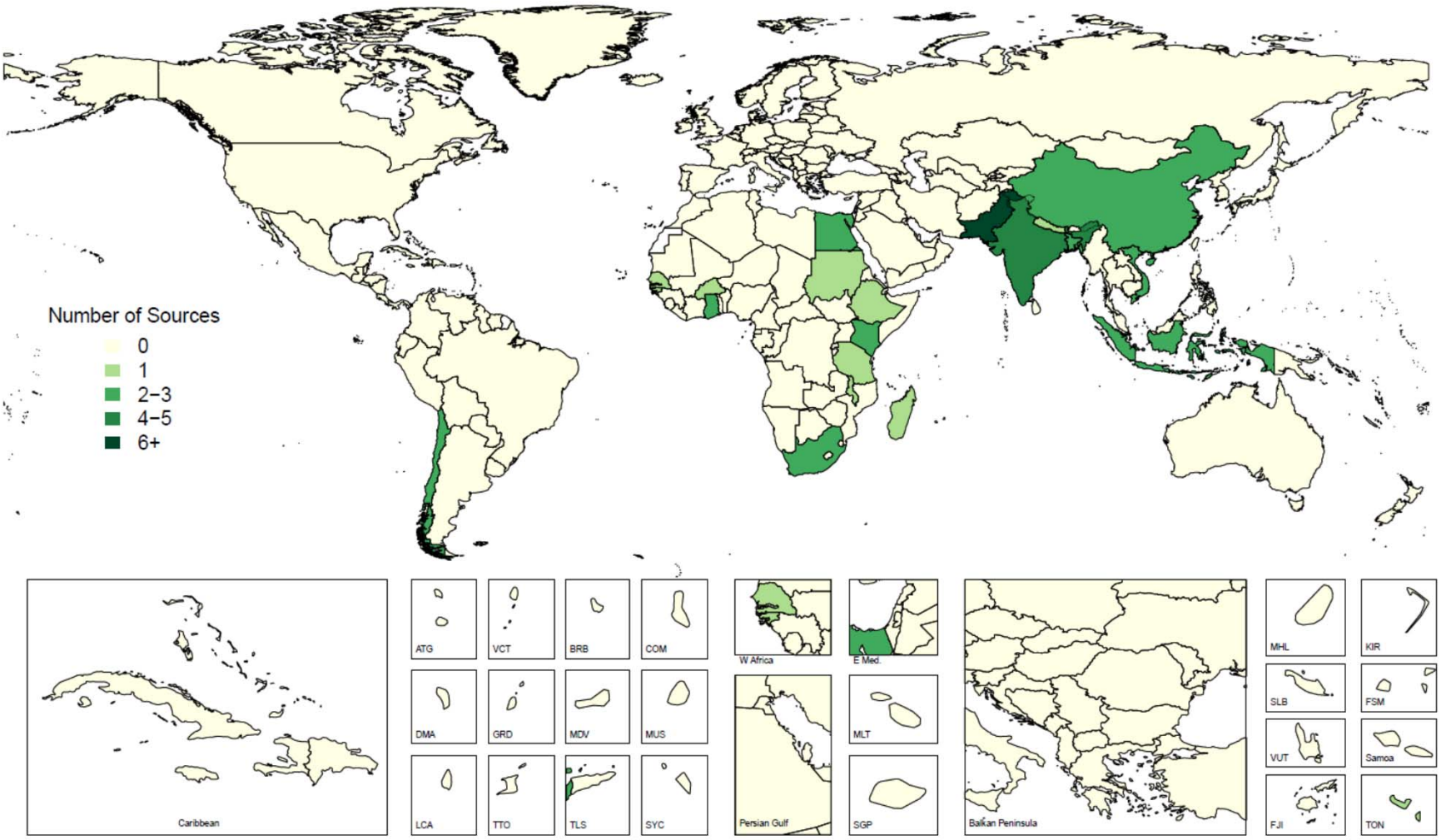
Published typhoid incidence data, 2010

DOMI (2000 – 2008)



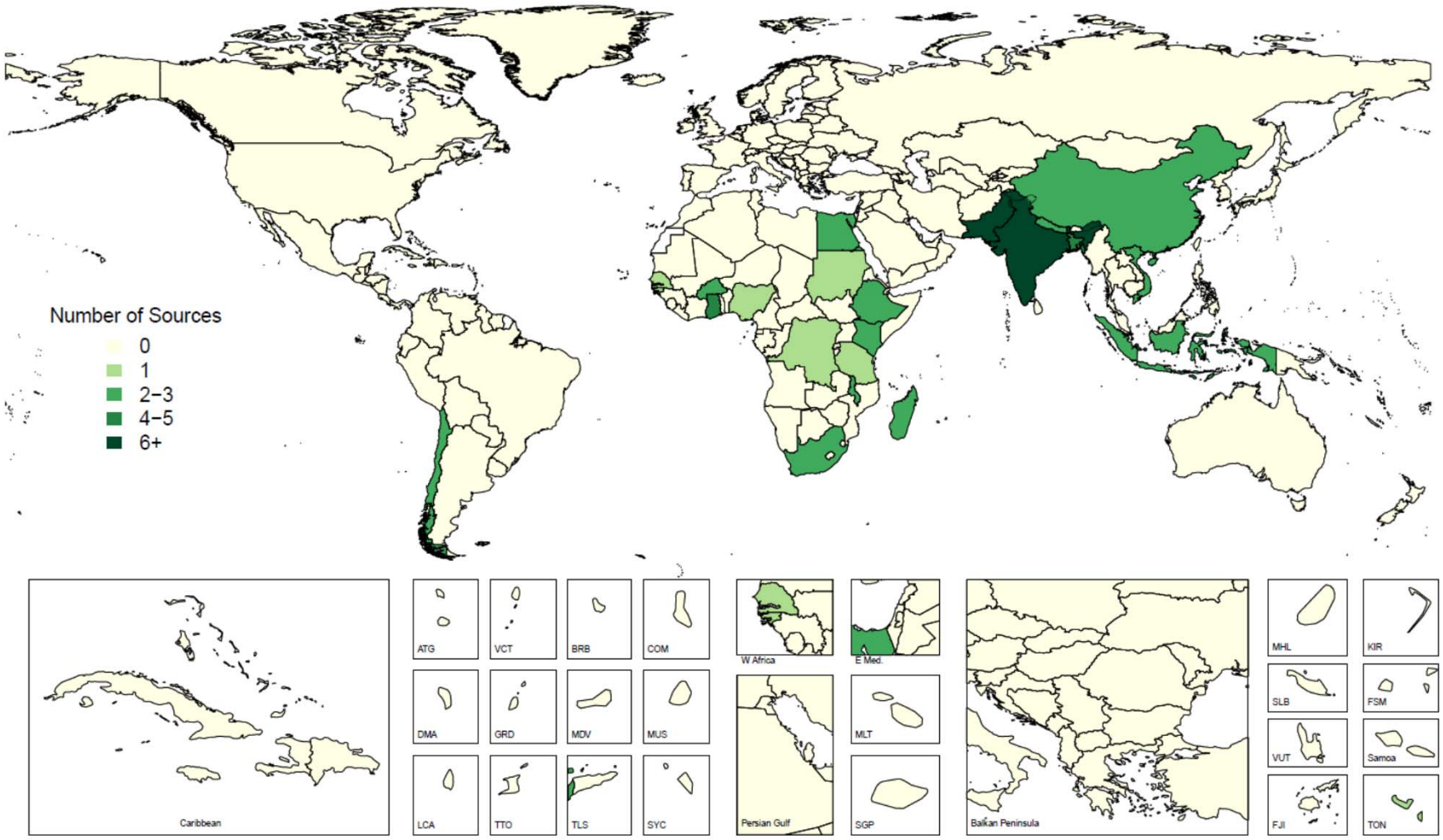
Published typhoid incidence data, today

TSAP (2010 – 2014)

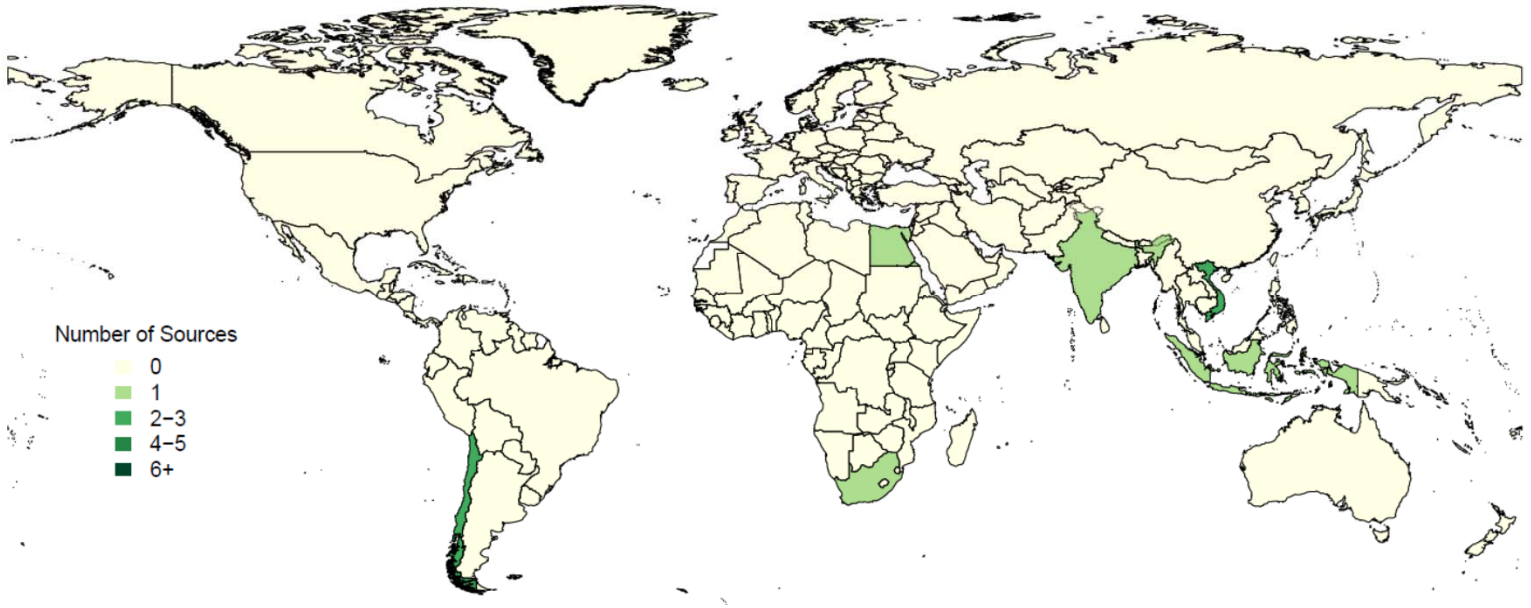


Published typhoid incidence data, 2020+

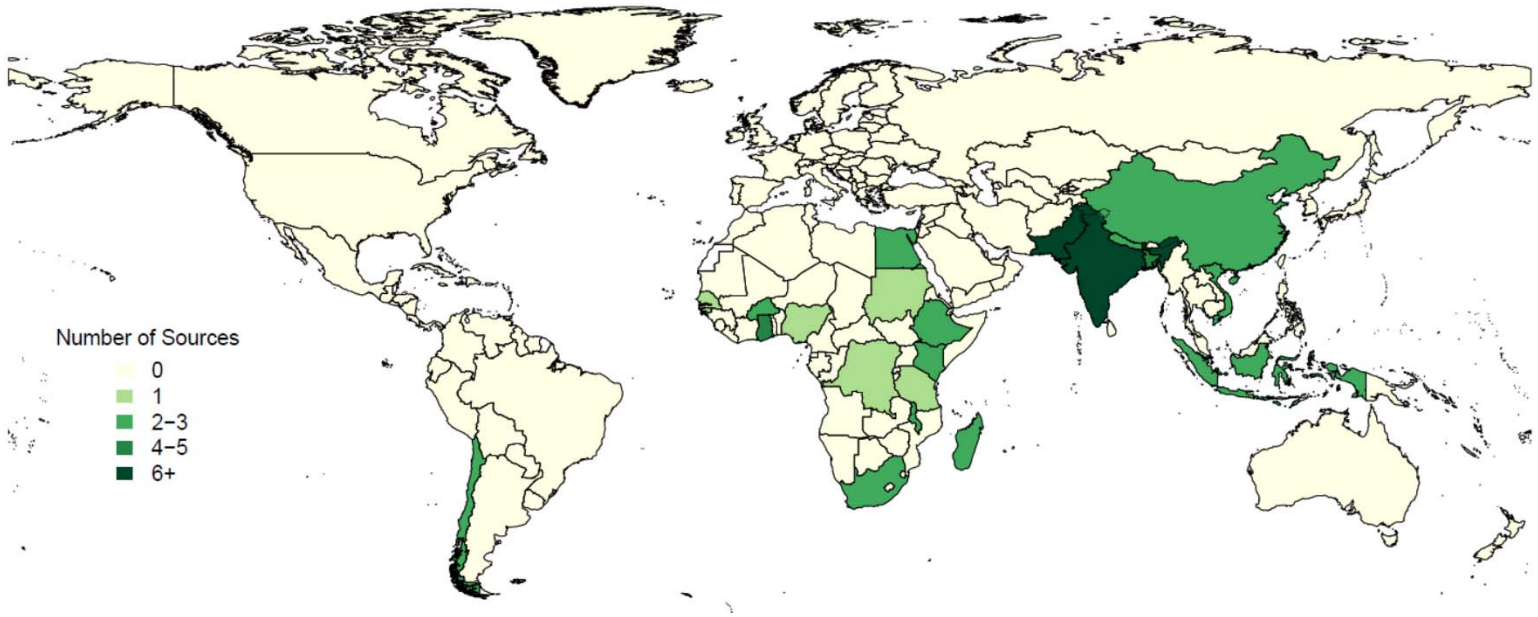
SEAP, SETA, STRATAA, SEFI



2000



2020

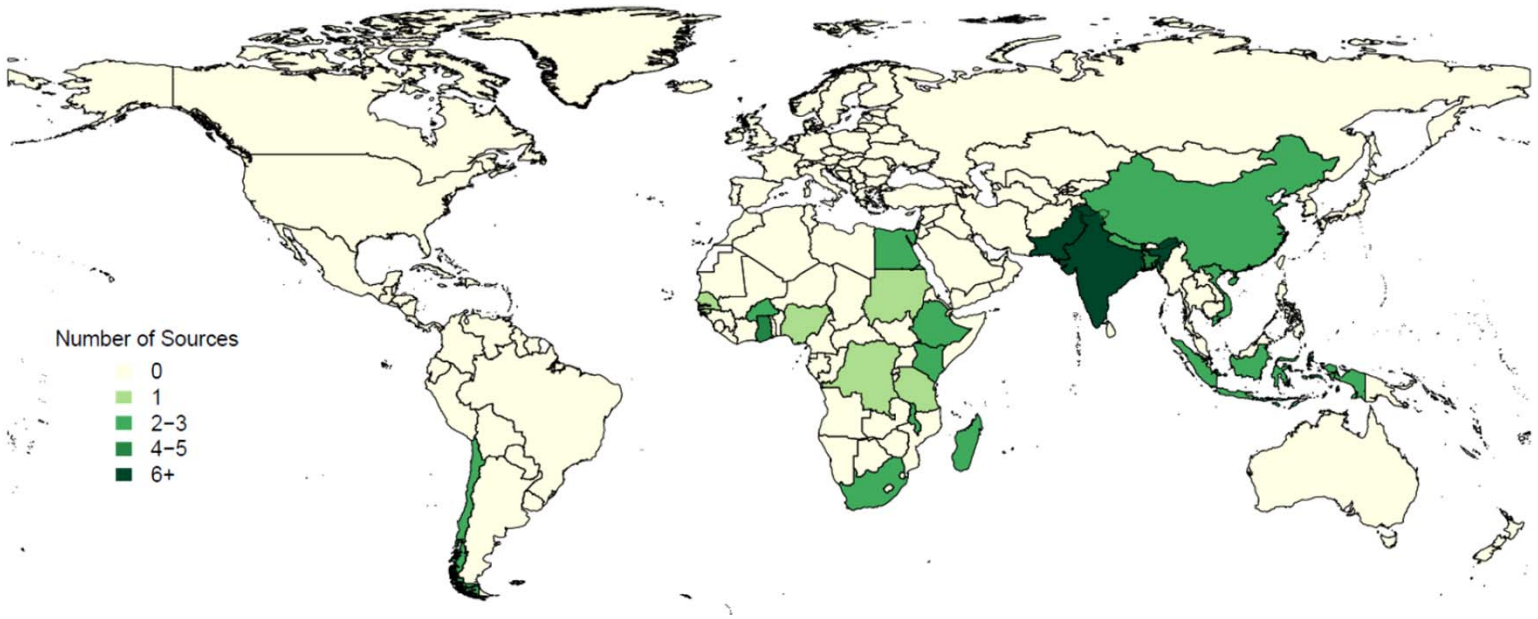


Uncertainty remains

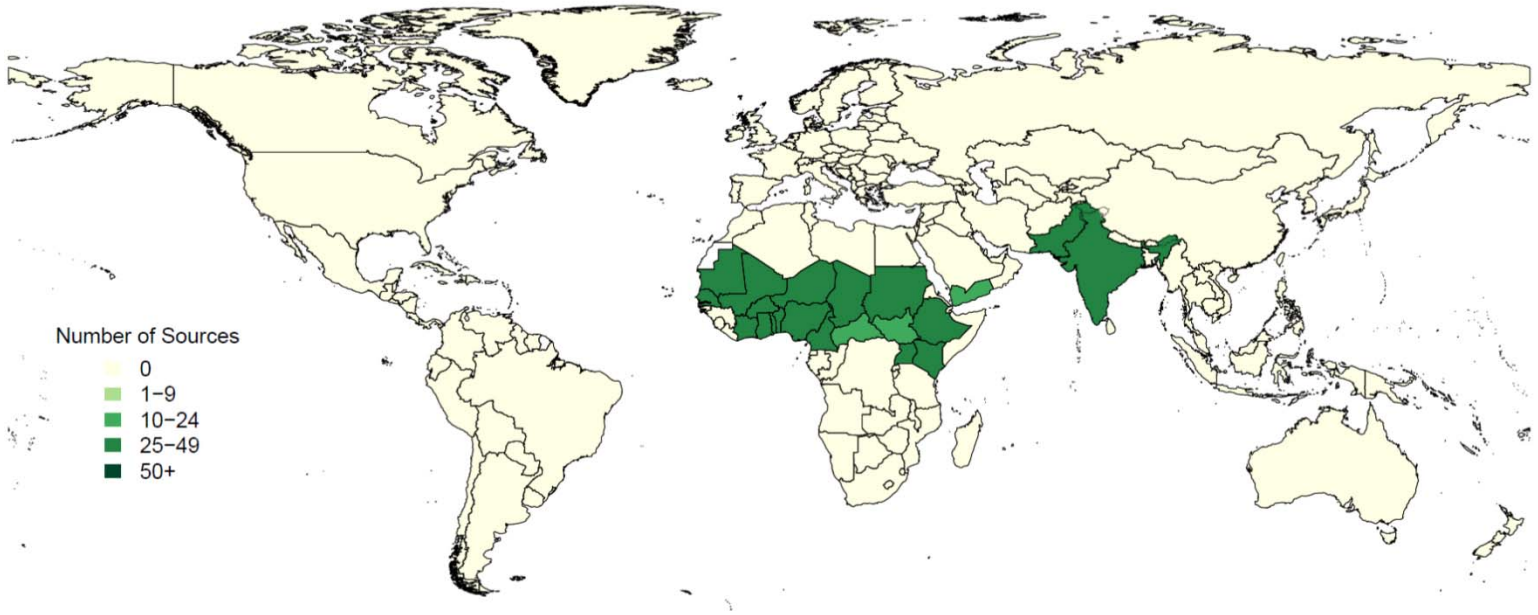
Most countries lack systematic typhoid surveillance systems and, consequently, can't know their true burden or trends in that burden

Data abundance for typhoid trails behind other causes considered targets for elimination/eradication efforts

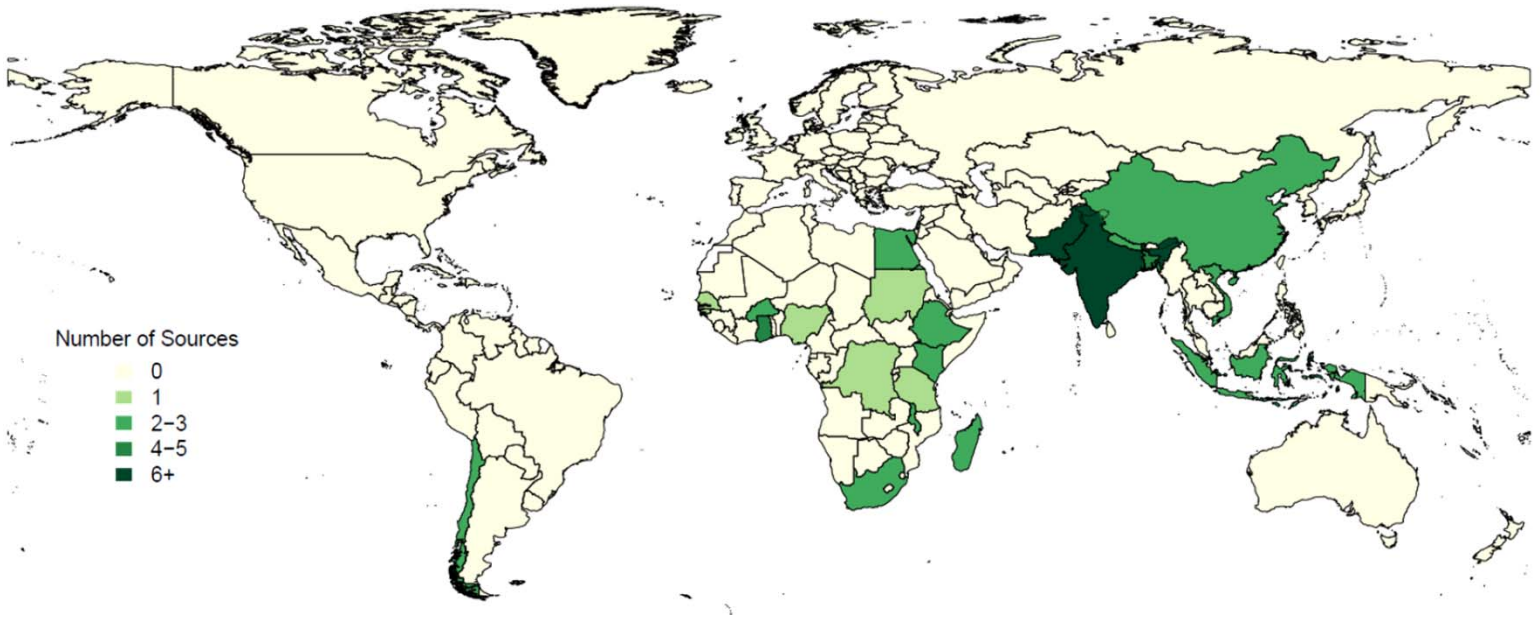
Typhoid



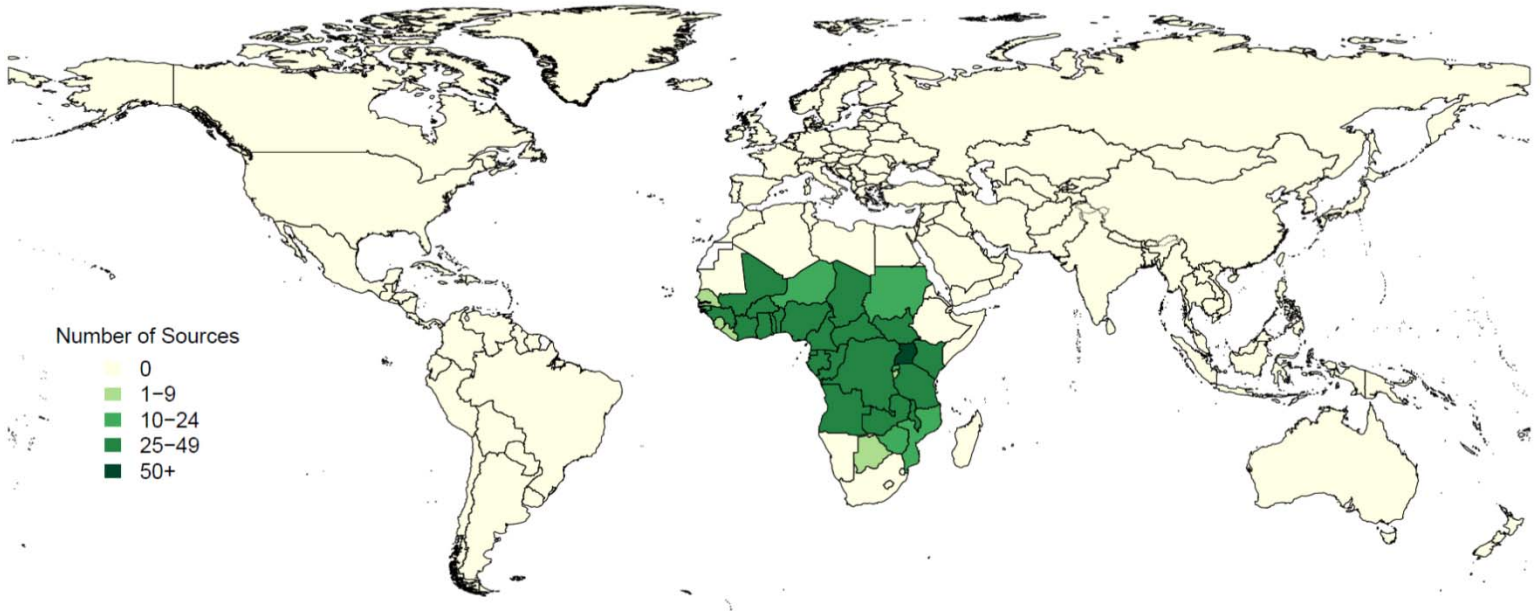
Guinea Worm



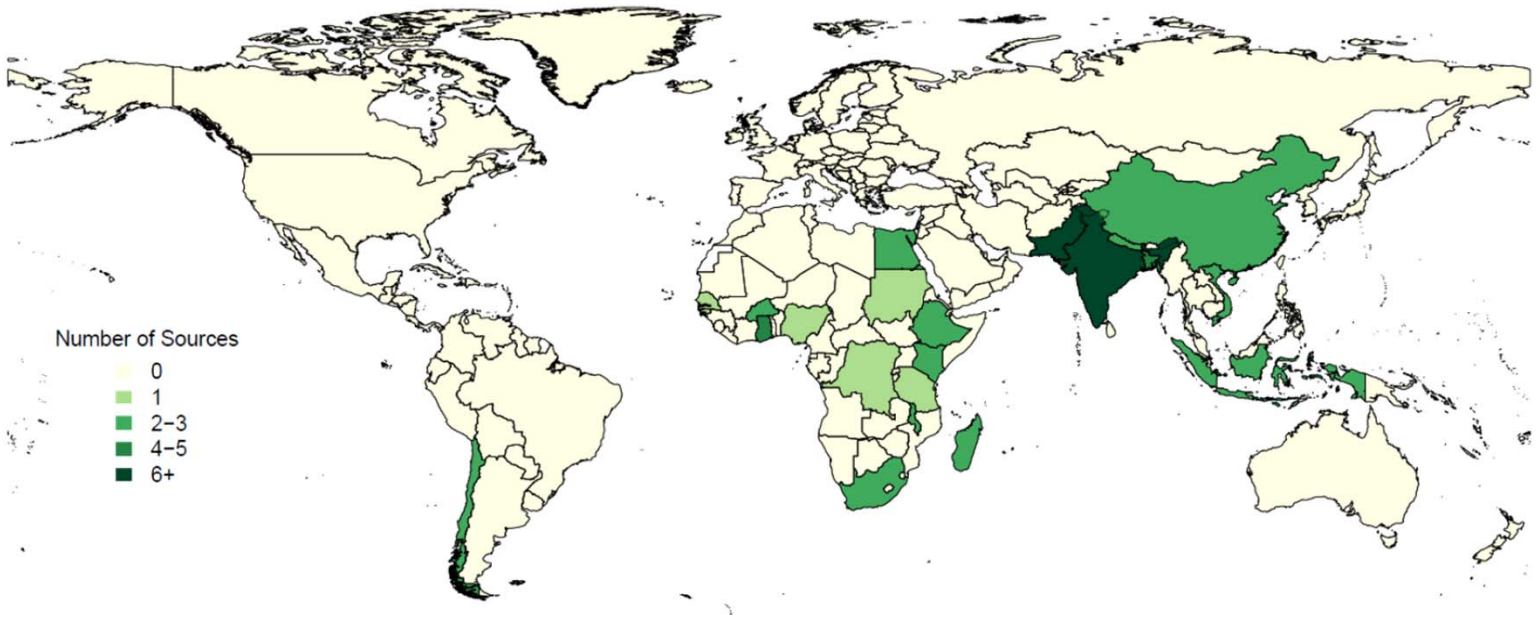
Typhoid



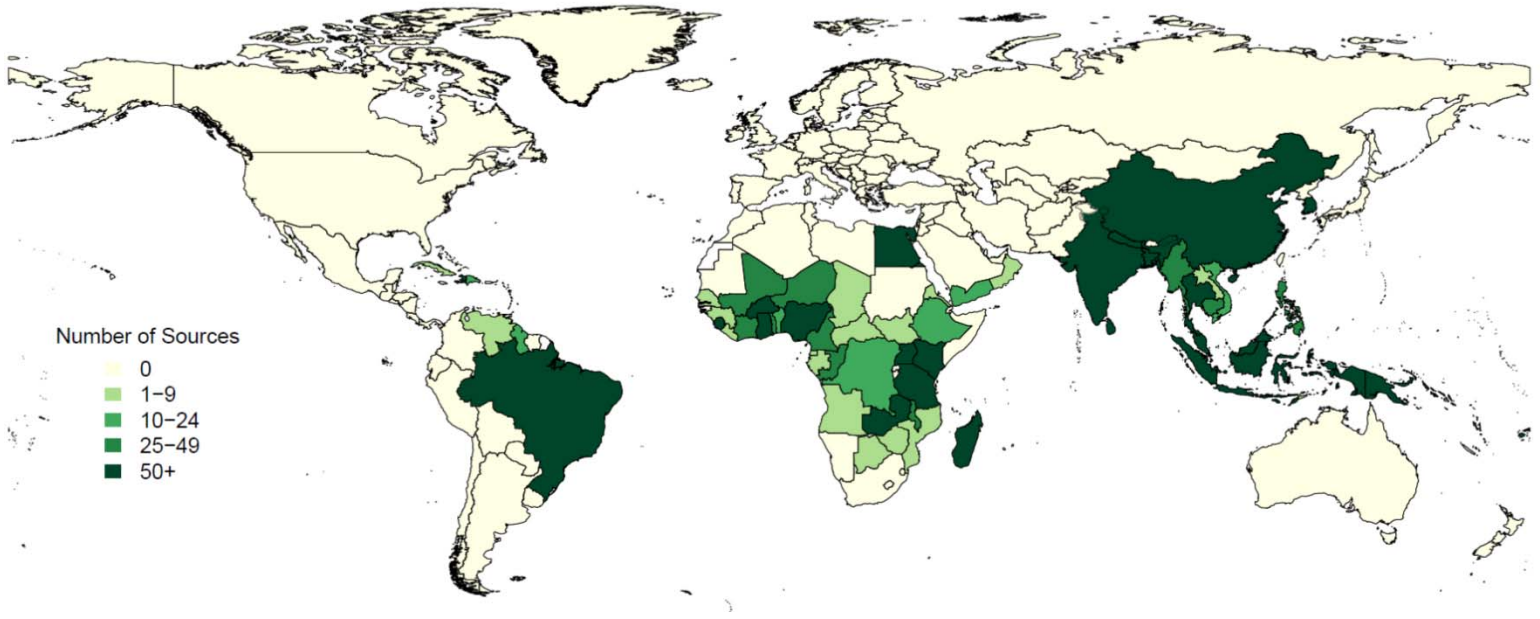
Human African Trypanosomiasis



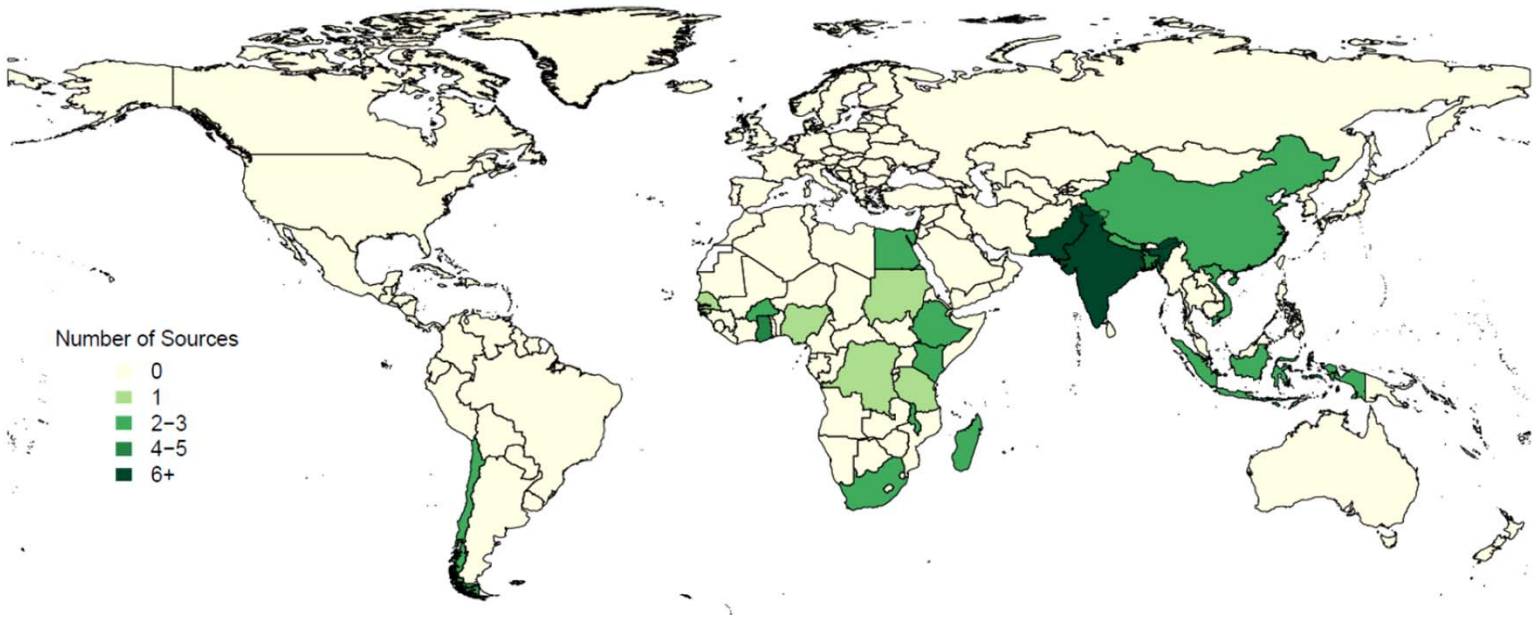
Typhoid



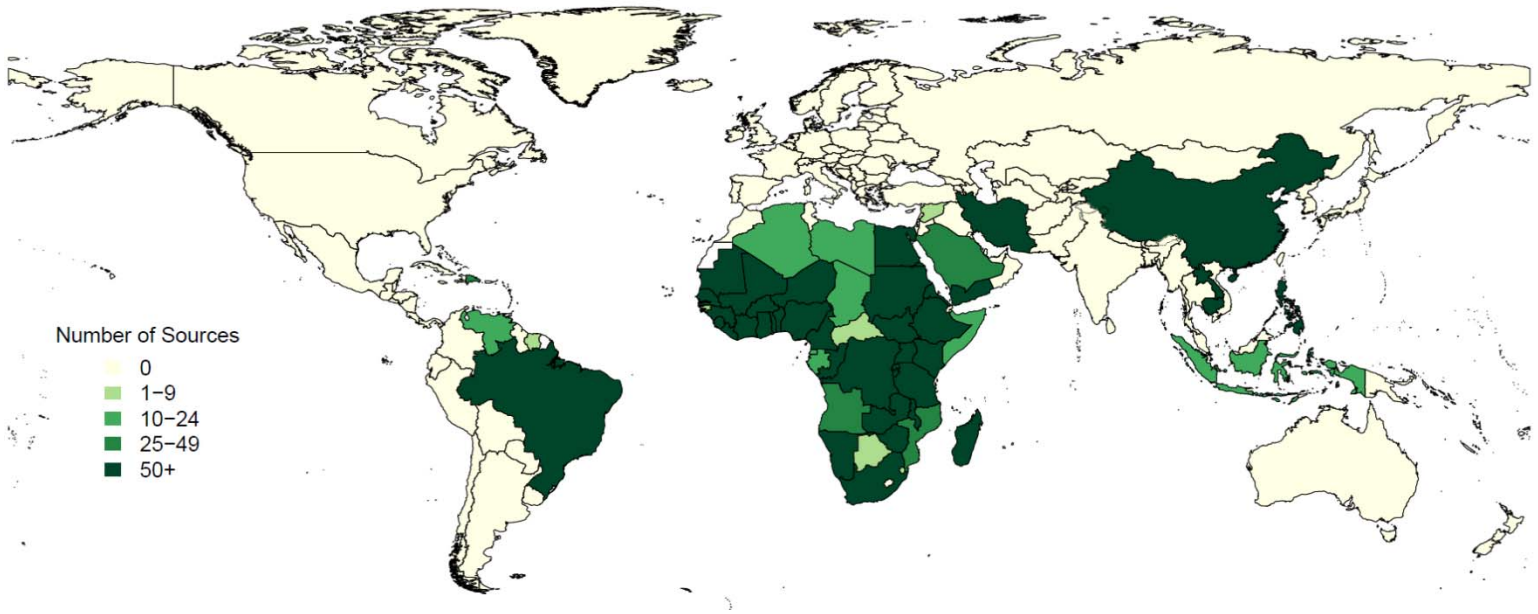
Lymphatic Filariasis



Typhoid



Schistosomiasis



Typhoid surveillance is challenging

- Diagnostics
  - Diagnostic limitations (e.g. low sensitivity, cost, necessary lab expertise & equipment, etc.) result in infrequent testing
  - Clinical diagnosis common but often inaccurate
- Incidence vs prevalence
  - Chronic infections: long window to detect cases; allows for survey-based monitoring
  - Acute infections: short window to detect cases

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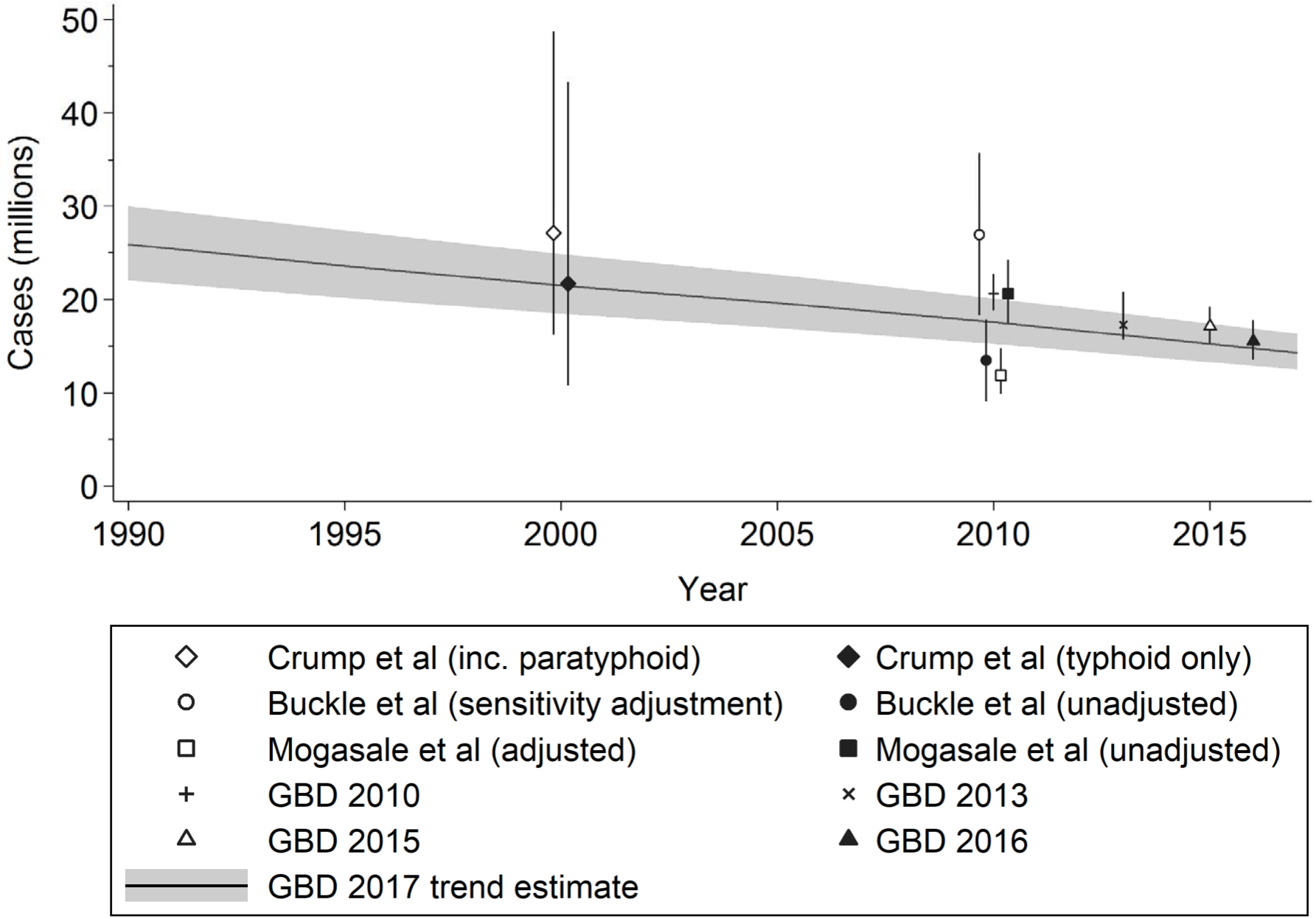
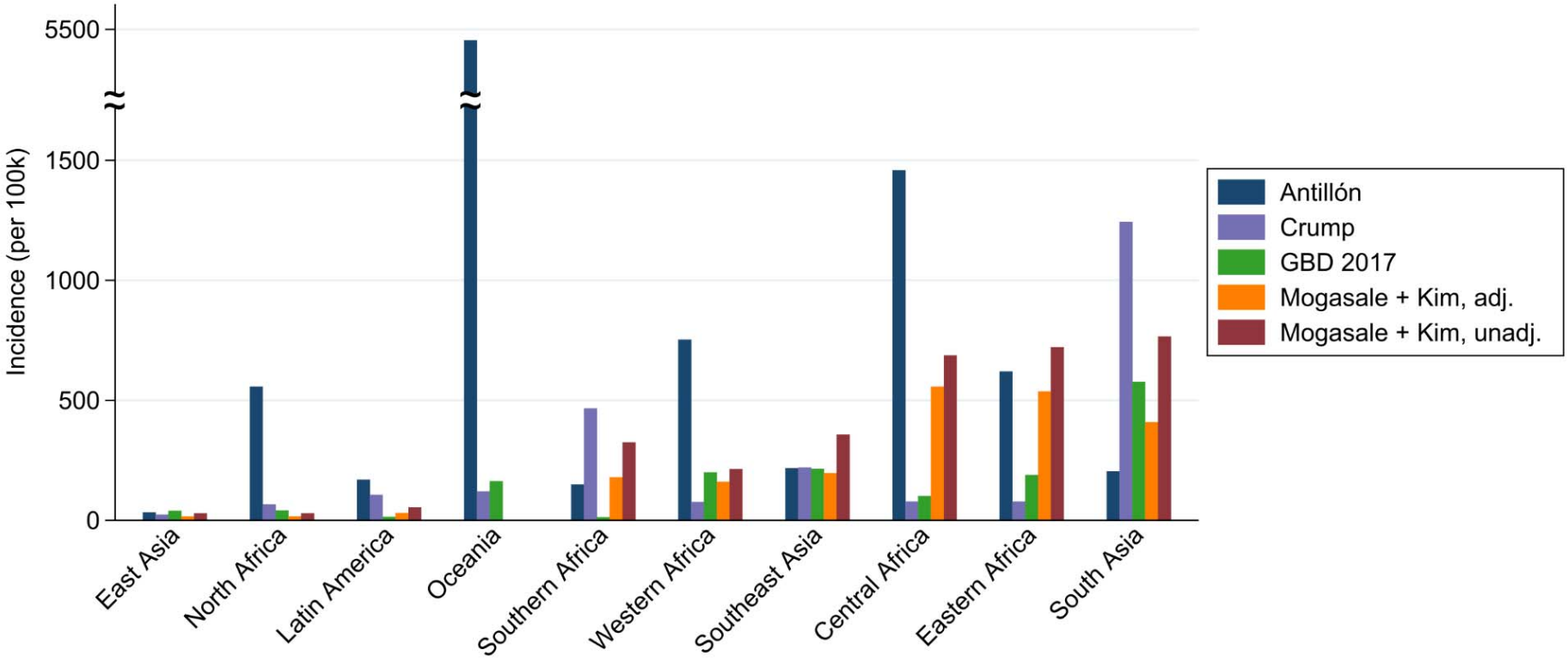
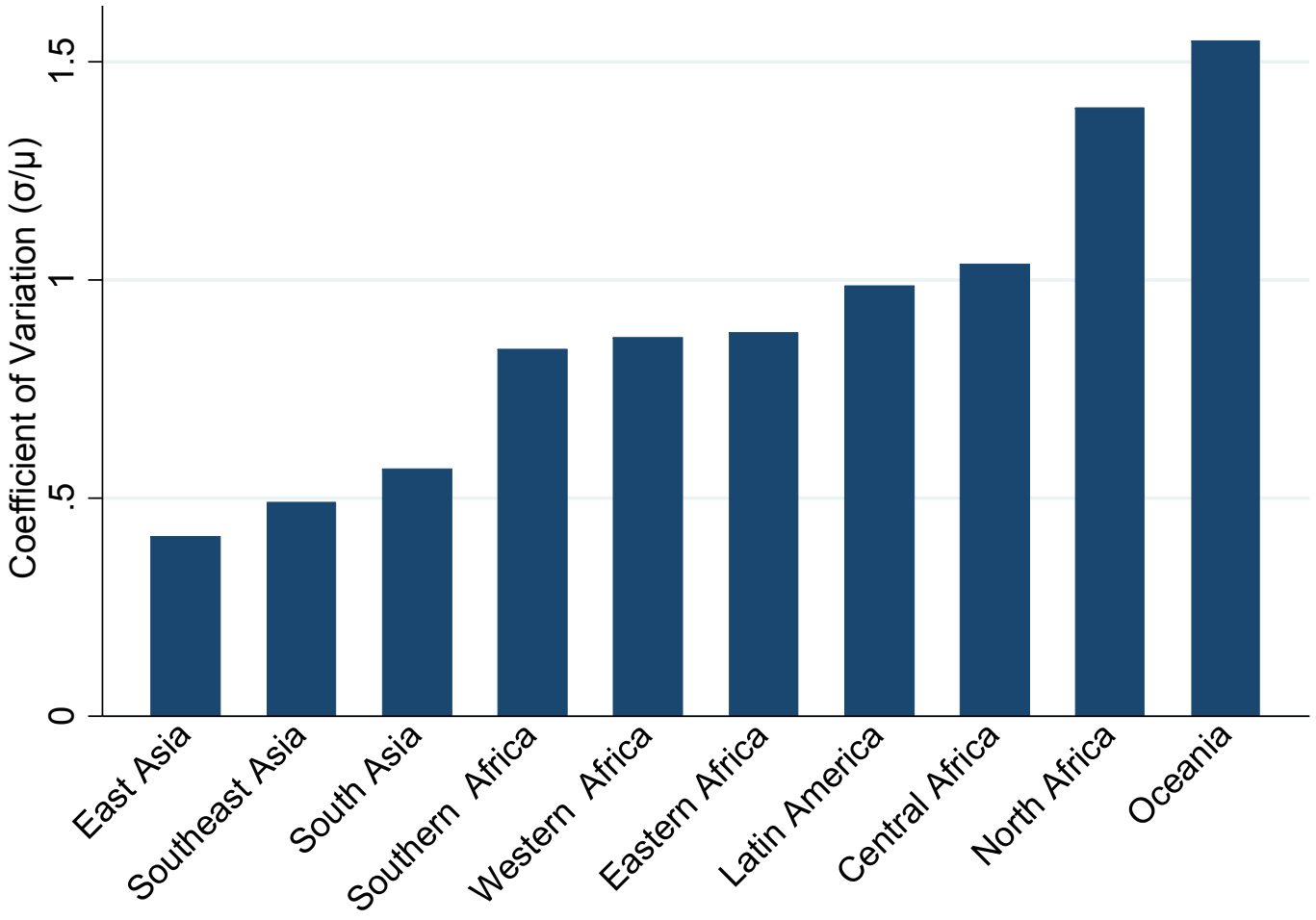
Estimating overall burden: broad agreement globally



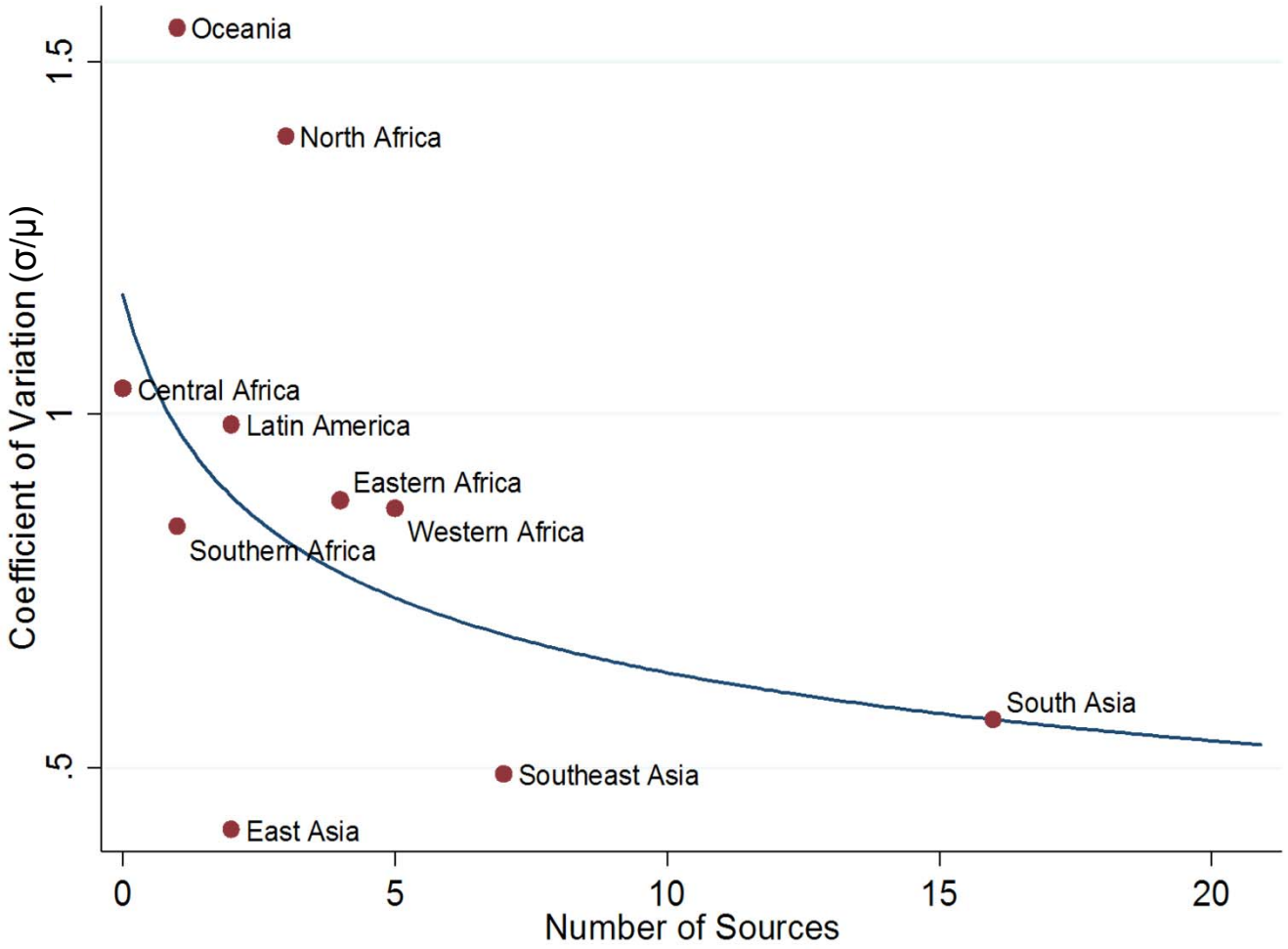
Characterizing spatial distribution: less agreement regionally



Where are the estimates most variable?



Variability is a function of data richness



Rank	Country	Cumulative % of Total Global DALYs	Data Sources
1	India	49.7%	6
2	Bangladesh	60.6%	5
3	Pakistan	66.6%	7
4	Indonesia	72.2%	3
5	Nigeria	75.2%	1

Data likely adequate to justify vaccination in highest burden countries

Detailed subnational data may not be necessary:
many countries will choose national TCV campaign rather than targeted approach

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Tracking progress

- Does the surveillance infrastructure exist where it's needed?
- Do we trust current diagnostics to detect cases

Tracking progress

- Surveillance of Enteric Fever in India (SEFI) is promising and may offer a model
- Leverage existing capacity (e.g. SEAP/SETA sites)
- Pursue low-cost alternatives to traditional surveillance: e.g. environmental surveillance may offer useful surrogate measure

Call to action

- Research should target areas where uncertainty is greatest and burden is expected to be large
- Countries should work to establish typhoid surveillance to track progress with TCV

- **Do not let uncertainty justify paralysis**

Thank you