WHO estimates of the global burden of foodborne diseases 2000–2021 2026 Edition: Key Findings

Webinar World Food Safety Day 2026 – Asia and Pacific Edition | 4 June 2026

Presented on behalf of all the contributors to the 2026 edition

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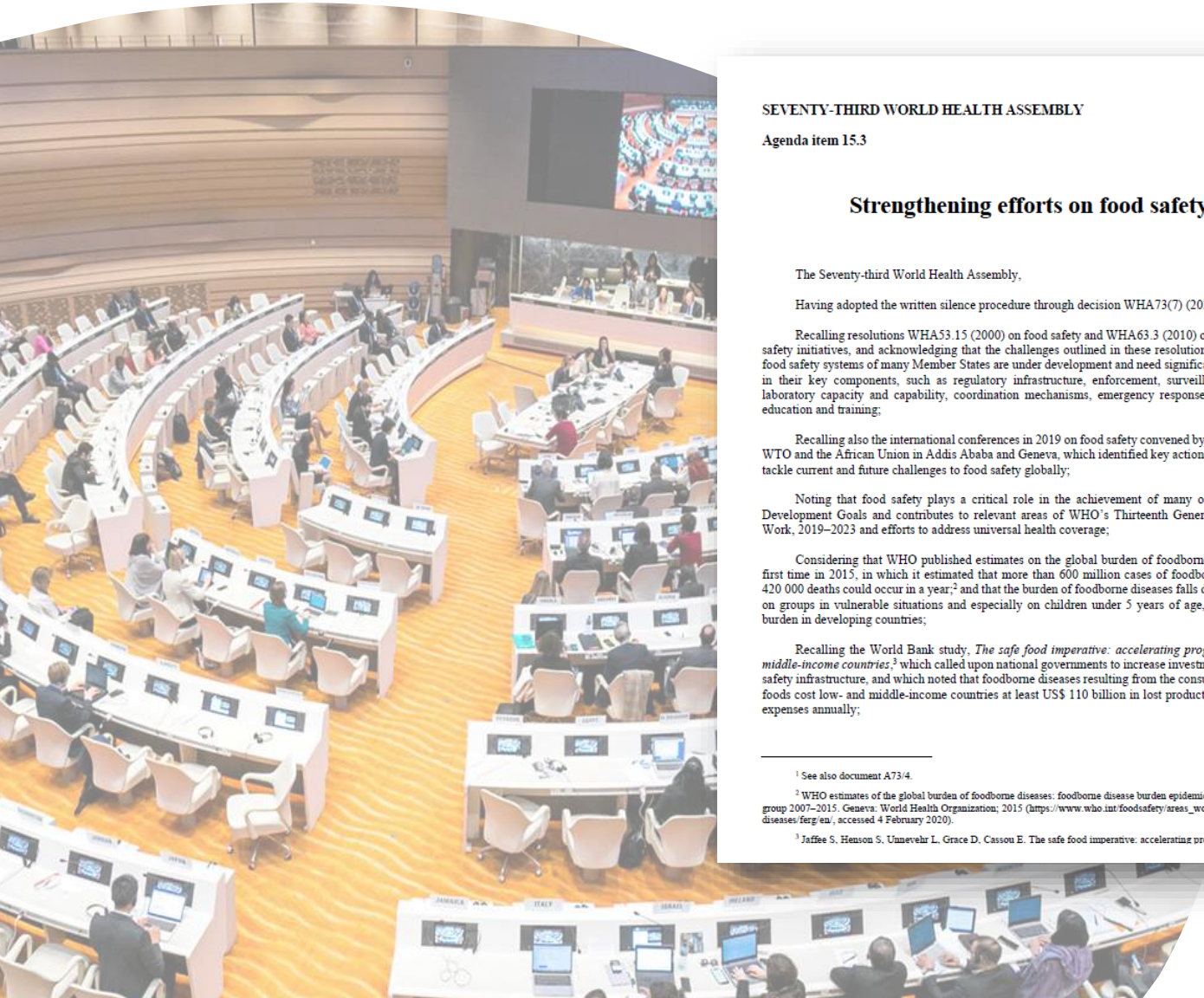
Background

First estimates of global burden of foodborne diseases published in 2015 by WHO and Foodborne Disease Burden Epidemiology Reference Group (FERG), 2007-2015

- Based on 31 hazards
- 600 million cases of foodborne illness annually
- 420,000 deaths every year
- Roughly one in 10 people to become sick from contaminated food
- 33 million years of healthy life lost annually (DALYs)

Seventy-third World Health Assembly (2020)



SEVENTY-THIRD WORLD HEALTH ASSEMBLY WHA73.5

Agenda item 15.3 3 August 2020

Strengthening efforts on food safety

The Seventy-third World Health Assembly,

Having adopted the written silence procedure through decision WHA73(7) (2020);[1]

Recalling resolutions WHA53.15 (2000) on food safety and WHA63.3 (2010) on advancing food safety initiatives, and acknowledging that the challenges outlined in these resolutions continue as the food safety systems of many Member States are under development and need significant improvements in their key components, such as regulatory infrastructure, enforcement, surveillance, inspection, laboratory capacity and capability, coordination mechanisms, emergency response and food safety education and training;

Recalling also the international conferences in 2019 on food safety convened by WHO, FAO, and WTO and the African Union in Addis Ababa and Geneva, which identified key actions and strategies to tackle current and future challenges to food safety globally;

Noting that food safety plays a critical role in the achievement of many of the Sustainable Development Goals and contributes to relevant areas of WHO's Thirteenth General Programme of Work, 2019–2023 and efforts to address universal health coverage;

Considering that WHO published estimates on the global burden of foodborne diseases for the first time in 2015, in which it estimated that more than 600 million cases of foodborne illnesses and 420 000 deaths could occur in a year;[2] and that the burden of foodborne diseases falls disproportionately on groups in vulnerable situations and especially on children under 5 years of age, with the highest burden in developing countries;

Recalling the World Bank study, *The safe food imperative: accelerating progress in low- and middle-income countries*,[3] which called upon national governments to increase investments in their food safety infrastructure, and which noted that foodborne diseases resulting from the consumption of unsafe foods cost low- and middle-income countries at least US$ 110 billion in lost productivity and medical expenses annually;

[1] See also document A73/4.

[2] WHO estimates of the global burden of foodborne diseases: foodborne disease burden epidemiology reference group 2007–2015. Geneva: World Health Organization; 2015 (https://www.who.int/foodsafety/areas_work/foodborne-diseases/ferg/en/, accessed 4 February 2020).

[3] Jaffee S, Henson S, Unnevehr L, Grace D, Cassou E. The safe food imperative: accelerating progress in low- and

New resolution mandated WHO to:

1. Regularly monitor and report to Member States on the global burden of foodborne and zoonotic diseases at national, regional and international level

2. Prepare an updated report by 2025 with up-to-date estimates of incidence, mortality and disease burden in terms of disability-adjusted life years (DALYs)

https://apps.who.int/gb/ebwha/pdf_files/WHA73/A73_R5-en.pdf

Foodborne Disease Burden Epidemiology Reference Group (FERG) for 2021-2025

FERG is a technical advisory group. Its functions include:

- Advise WHO on the methodology to estimate the burden of foodborne diseases
- Advise WHO on the development of and the methodology to monitor food safety-related indicator(s)

These results are now being disseminated through 5 papers in Lancet Global Health, and a Key Findings Report

https://www.who.int/groups/foodborne-disease-burden-epidemiology-reference-group-(ferg)

Major advances

① Increased number of hazards

② Updated source attribution data

③ Primary results for 2021

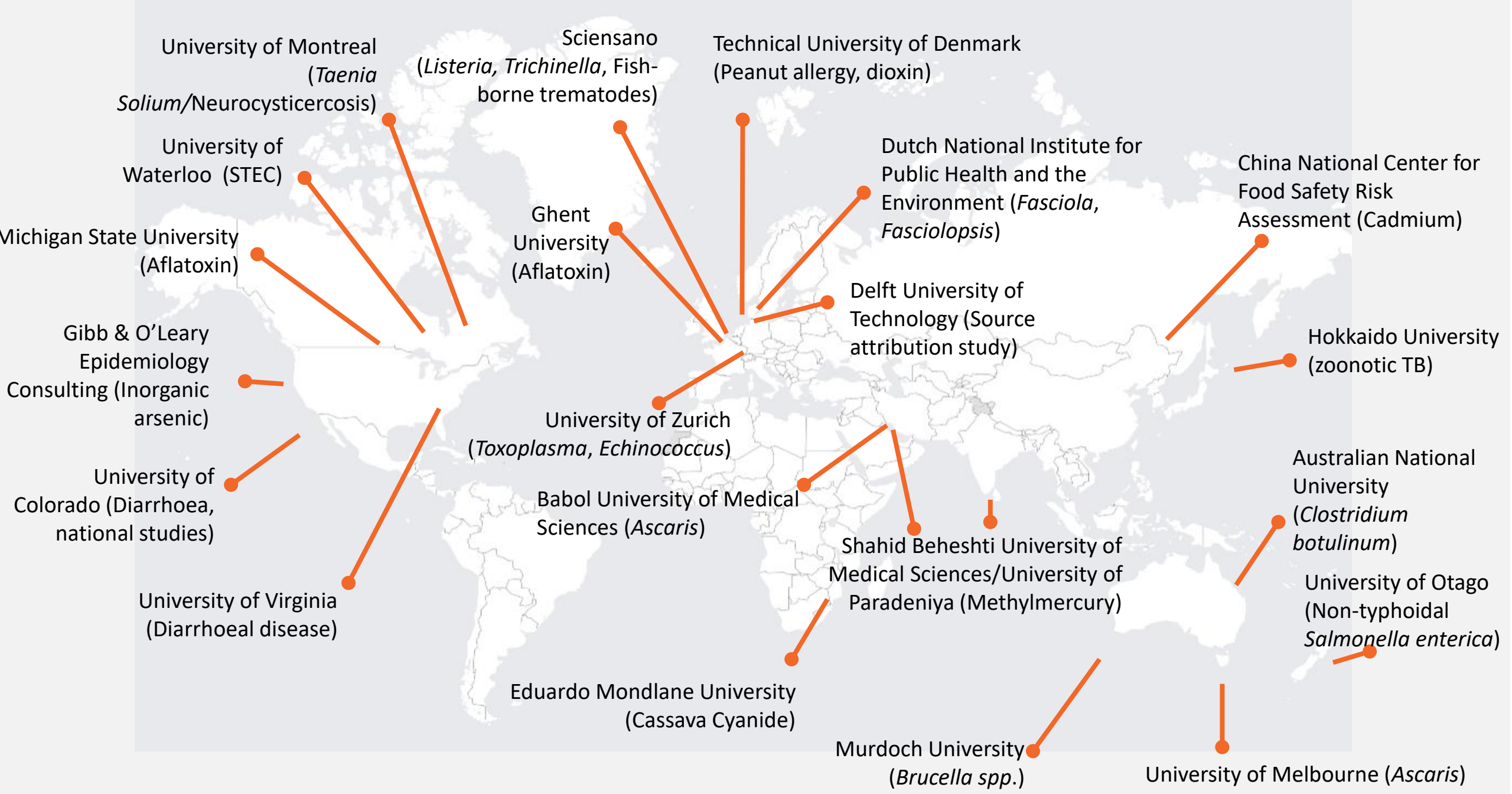
④ Examination of time trends for 2000-2021

⑤ Country level estimates shared with countries

⑥ High level economic burden

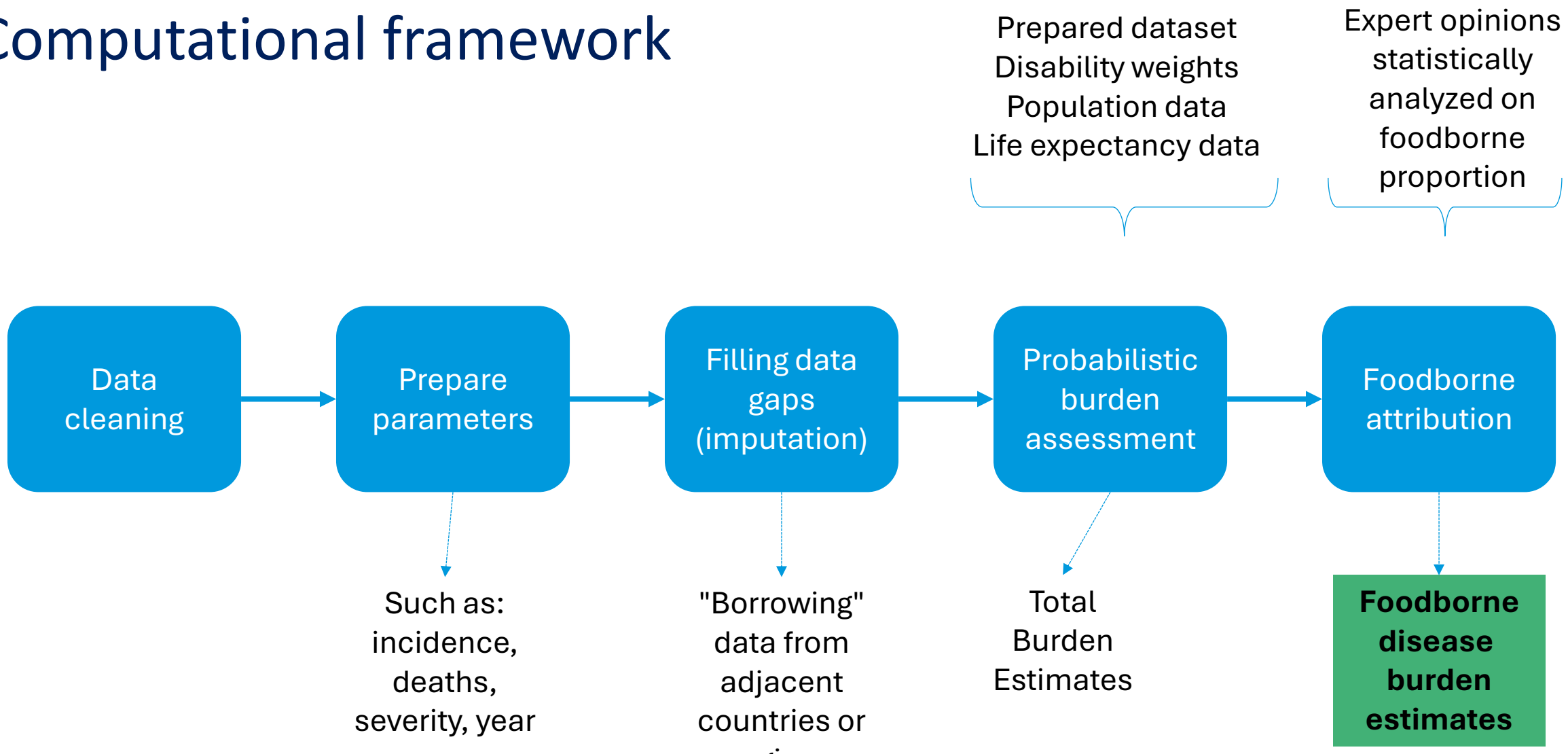
42 hazards considered under the 2026 edition

Diarrhoeal disease hazards	Non-diarrhoeal enteric disease hazards	Invasive parasitic disease hazards	Chemical hazards
Viruses 1. Norovirus **2. Rotavirus** Bacteria *3. Campylobacter* spp. **4. Enteroaggregative *E.coli* (EAEC)** 5. Enteropathogenic *E.coli* (EPEC) 6. Enterotoxigenic *E.coli* (ETEC) 7. Shiga toxin-producing *E.coli* (STEC) *8. Salmonella enterica,* non-typhoidal* *9. Shigella* spp. *10. Vibrio cholerae* Protozoa *11. Cryptosporidium* spp. ***12. Cyclospora cayetanensis*** *13. Entamoeba histolytica* *14. Giardia duodenalis*	Viruses 1. Hepatitis A virus Bacteria *2. Brucella* spp. *3. Listeria monocytogenes* *4. Mycobacterium bovis, caprae, and orygis* *5. Salmonella enterica*, non-typhoidal* *6. Salmonella enterica* Paratyphi A, B and C *7. Salmonella enterica* Typhi Enteric intoxications *8. Clostridium botulinum* *Salmonellosis and invasive salmonellosis are considered a single hazard that causes two diseases.	Parasites Protozoa *1. Toxoplasma gondii* ***2. Trypanosoma cruzi*** Cestodes *1. Echinococcus granulosus* *2. Echinococcus multilocularis* *3. Taenia solium* Nematodes *4. Ascaris* spp. *5. Trichinella* spp. Trematodes *6. Clonorchis sinensis* *7. Fasciola* spp. and *Fasciolopsis buski* 8. Minute intestinal flukes *9. Opisthorchis* spp. *10. Paragonimus* spp.	Organic pollutants 1. Dioxin Toxins and alergens 2. Aflatoxin B1 **3. Aflatoxin M1** 4. Cassava cyanide 5. Peanut allergens Metals **6. Inorganic Arsenic** **7. Cadmium** **8. Lead** **9. Methylmercury**



Systematic Review teams commissioned for data collection

Computational framework



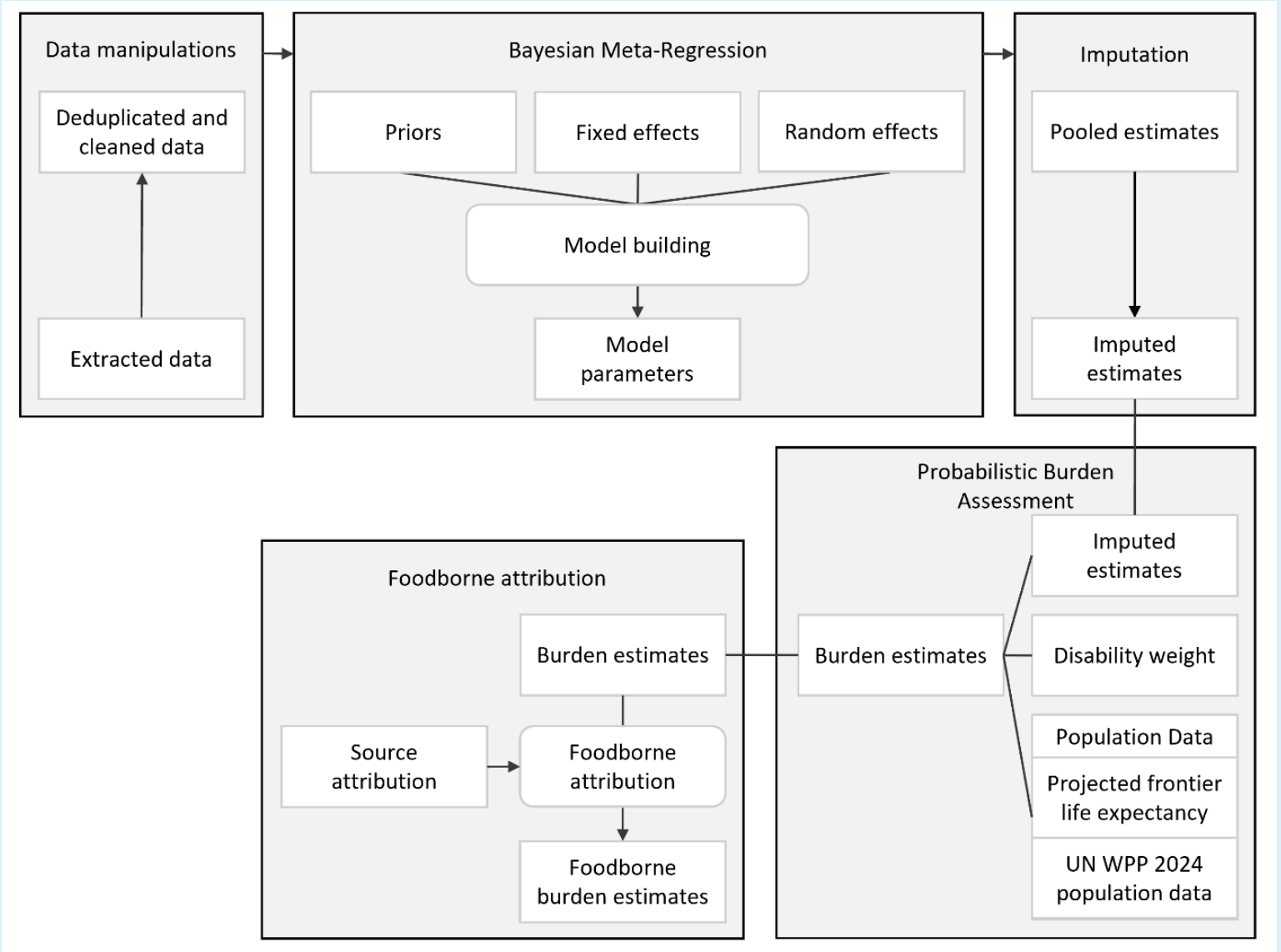
Computational framework (details)

Technical webinar:

"Building WHO estimates of the burden of foodborne diseases: Data, methods and modelling"

23 June | 13:00 – 12:00 CET

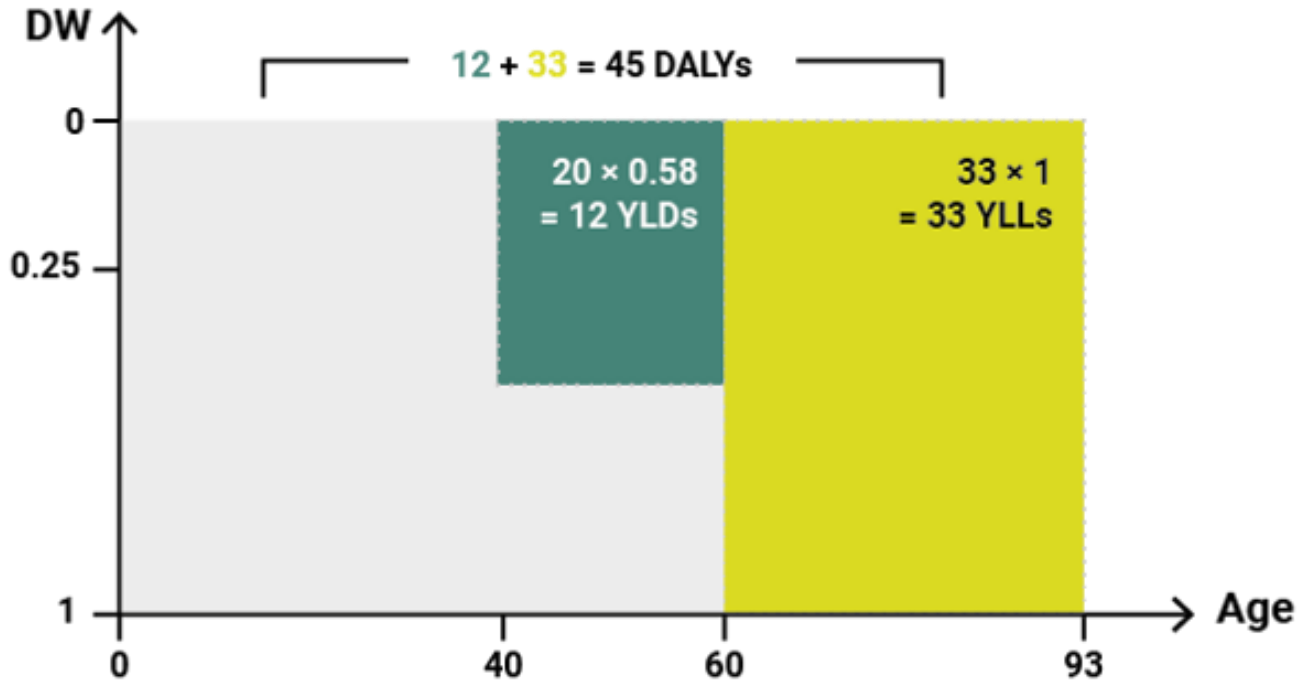
Preprint publication:
https://www.medrxiv.org/content/10.64898/2026.05.13.26353030v1



Disability-Adjusted Life Years (DALYs)

DALY: A health gap metric, measuring the healthy life-years lost due to diseases or risk factors.

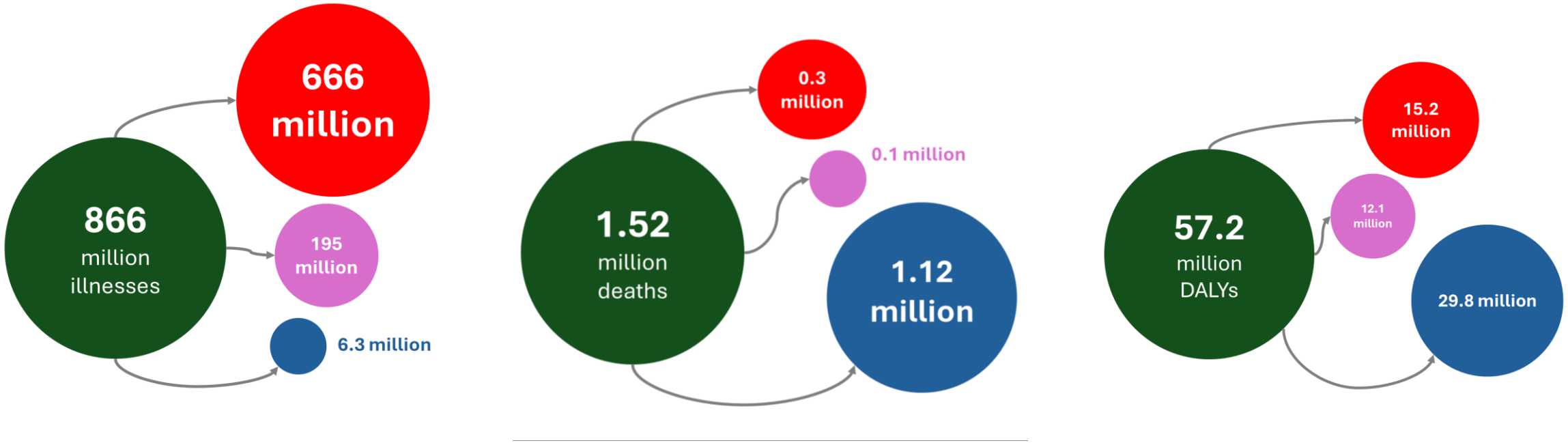
- Calculated by adding the number of years of life lost due to premature mortality (*YLL*) and the number of years lived with disability (*YLD*), adjusted for severity.
- YLL is the product of the number of deaths and the average remaining life expectancy at the time of death.
- YLD is defined as the product of the number of incident cases, the average duration until remission or death, and the disability weight, which reflects the reduction in health-related quality of life on a scale from 0 (no impact on full health) to 1 (death).



DALY=YLL+YLD

https://iris.who.int/handle/10665/341634

Headlines: 42 foodborne hazards estimated to cause globally, 2021



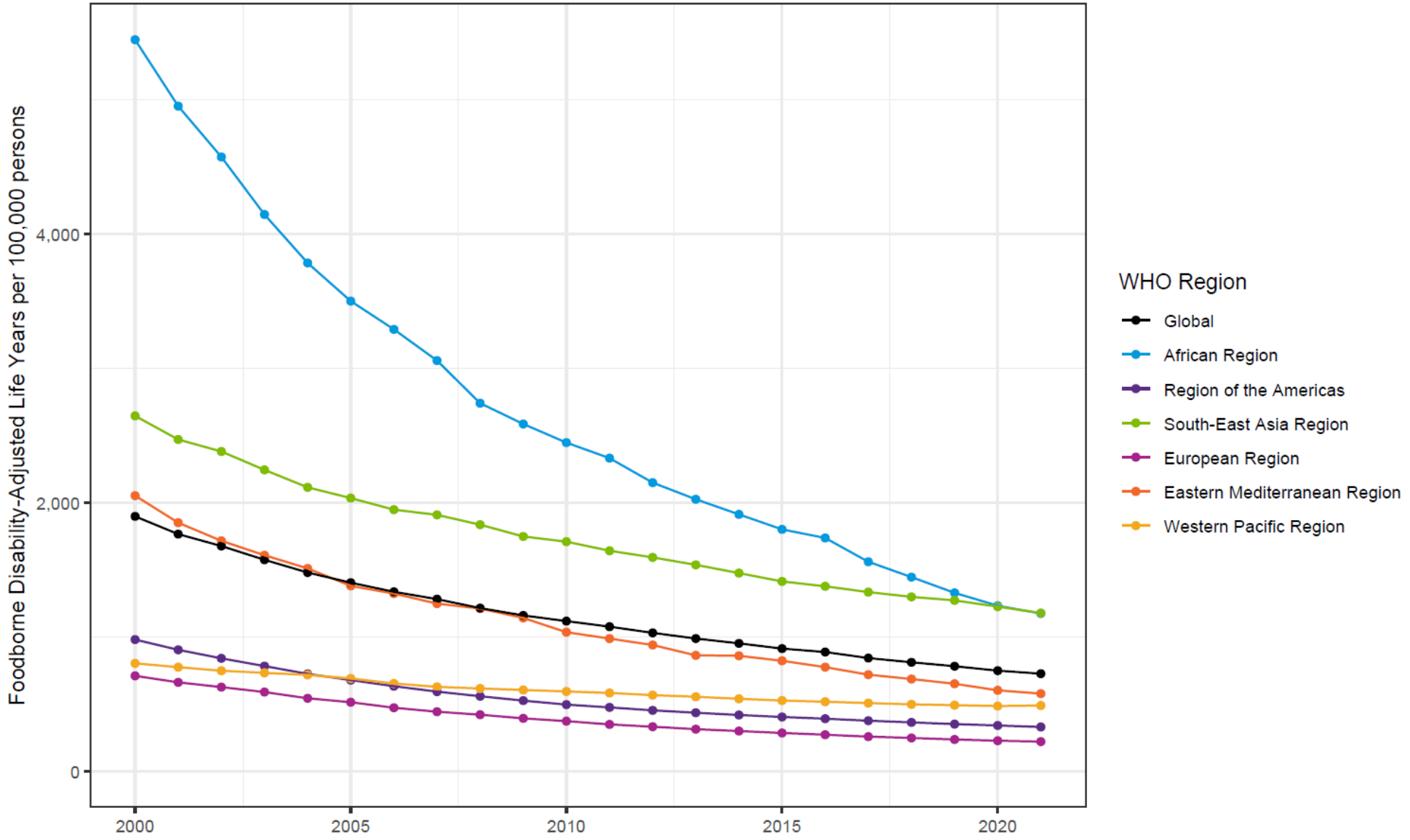
Global total in 2021

Diarrhoeal diseases

Invasive diseases

Non Communicable Diseases due to chemicals

Time trends


Foodborne Disability-Adjusted Life Years per 100,000 persons
4,000
2,000
0
2000
2005
2010
2015
2020
WHO Region
Global
African Region
Region of the Americas
South-East Asia Region
European Region
Eastern Mediterranean Region
Western Pacific Region

Context:

DALYs comparisons (WHO estimates for 2021)

Tuberculosis	**60 million**
Foodborne disease	**57.1** million
Malaria	**52** million
HIV/AIDS	**40** million

Economic burden:
For 2021, the estimated **productivity loss** was **US$ 310 billion** in nominal terms for all countries combined when all age groups are considered

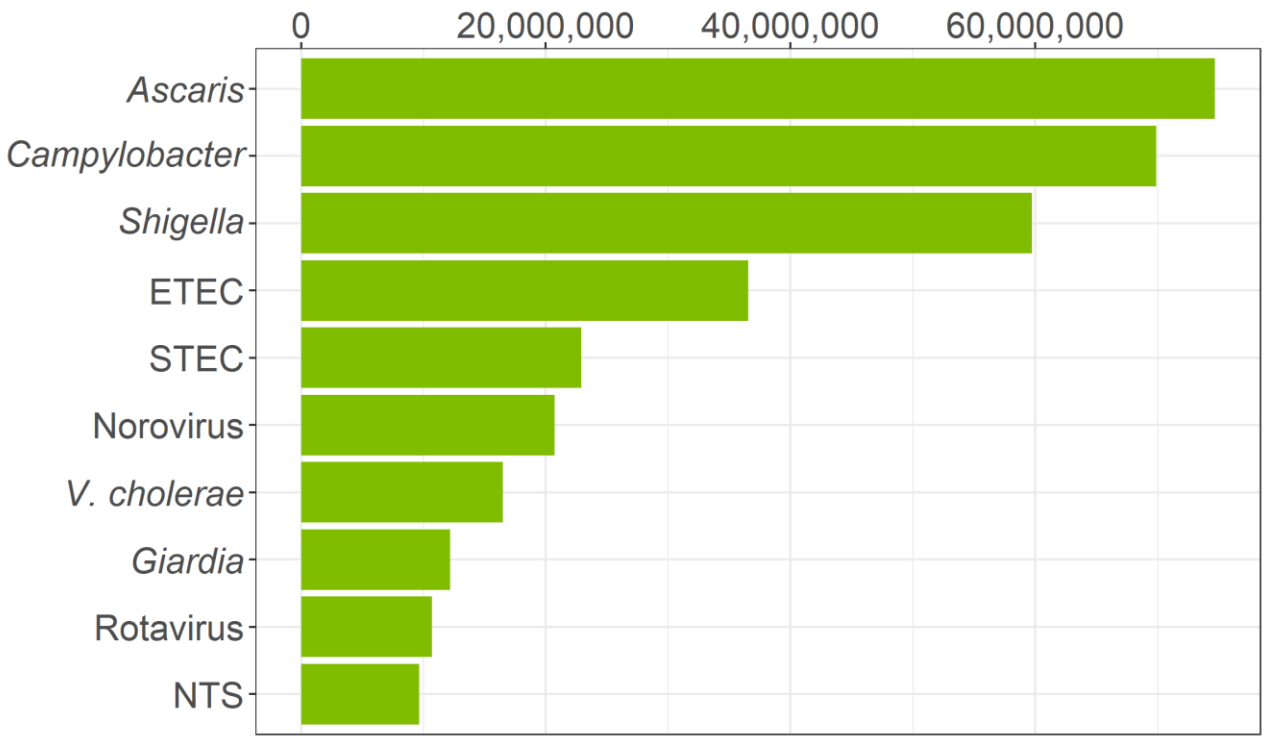
Data sharing: Global Health Observatory, scientific papers, dashboard, systematic review data, R code (Github)

Key findings on WHO South-East Asia and Western Pacific Regions

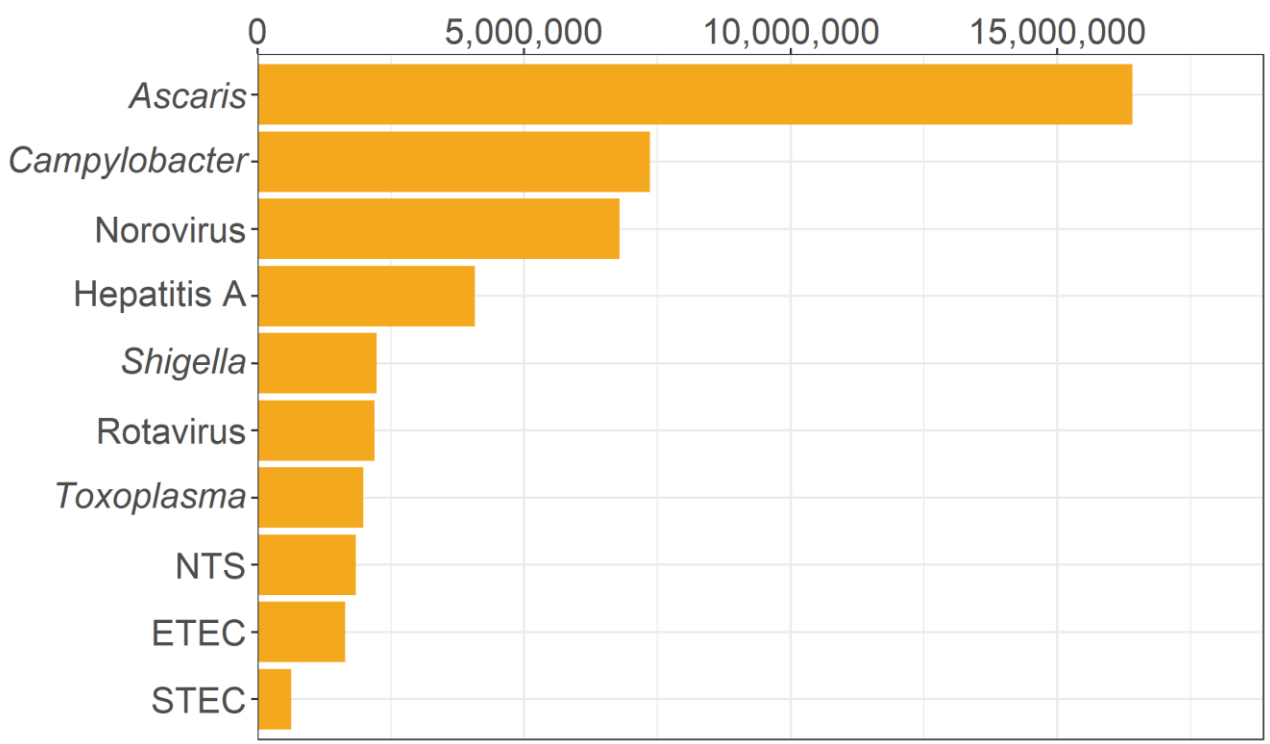
NB These estimates were made for WHO regions as in 2021.
Since then, Indonesia has been transferred from SEAR to WPR

	Illnesses	Deaths (all ages)	DALYs
Global	1. *Campylobacter* 2. *Ascaris* 3. ETEC	1. Arsenic 2. Lead 3. NTS	1. Arsenic 2. Lead 3. NTS
SEAR	1. *Ascaris* 2. *Campylobacter* 3. *Shigella*	1. Arsenic 2. Lead 3. Typhi	1. Arsenic 2. Lead 3. Typhi
WPR	1. *Ascaris* 2. *Campylobacter* 3. Norovirus	1. Arsenic 2. Lead 3. *Clonorchis*	1. Arsenic 2. Lead 3. *Clonorchis*

Top 10 foodborne illness hazards in SEAR/WPR in 2021 (in millions of cases)

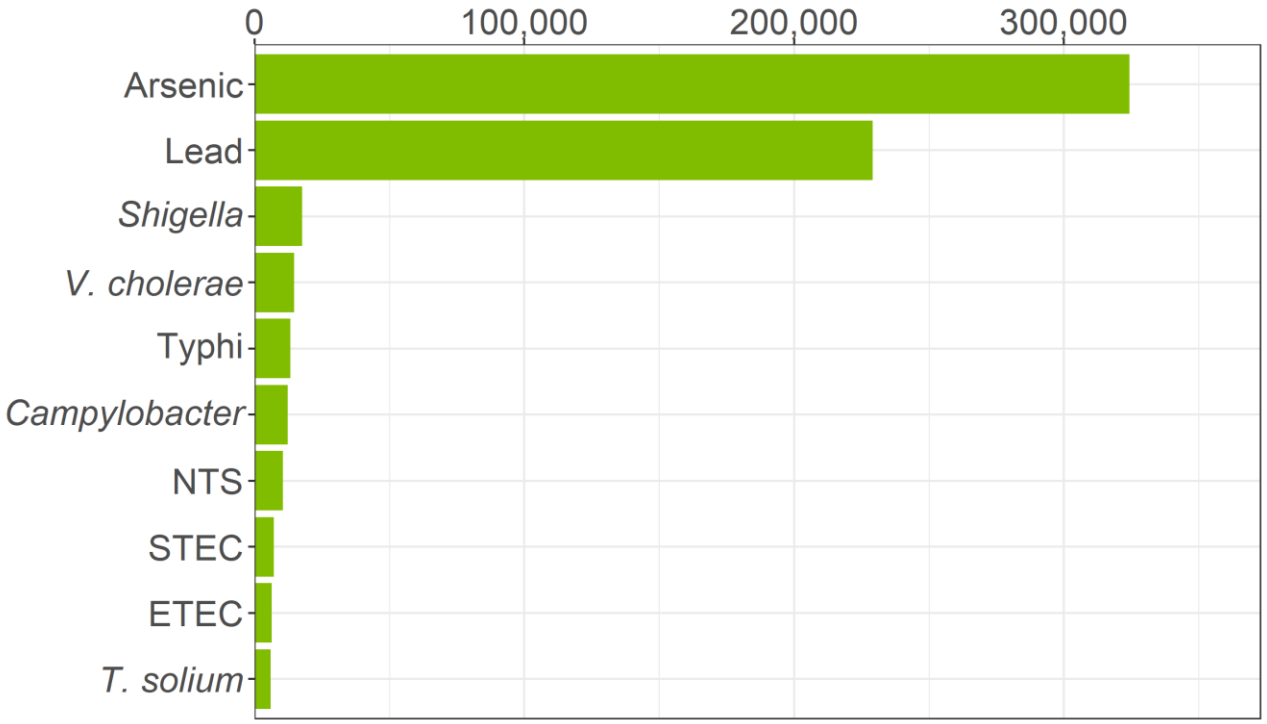


SEAR

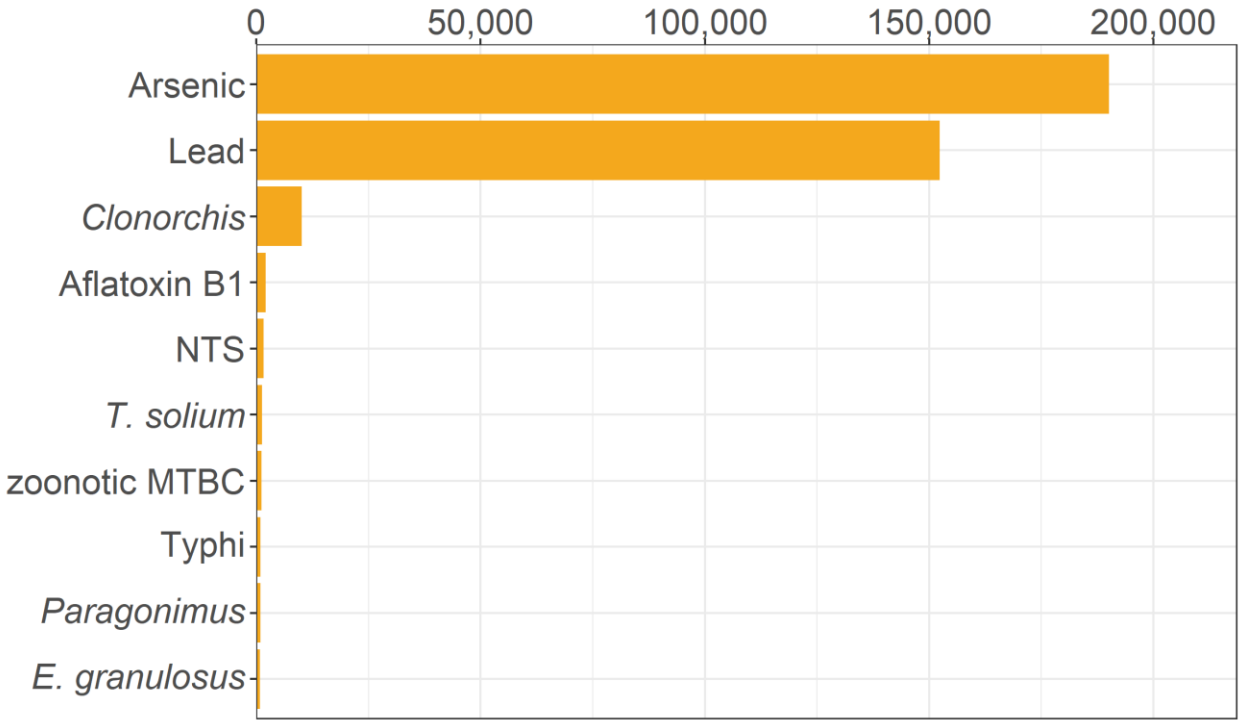


WPR

Top 10 causes of foodborne deaths in SEAR/WPR among people aged ≥ 5 years

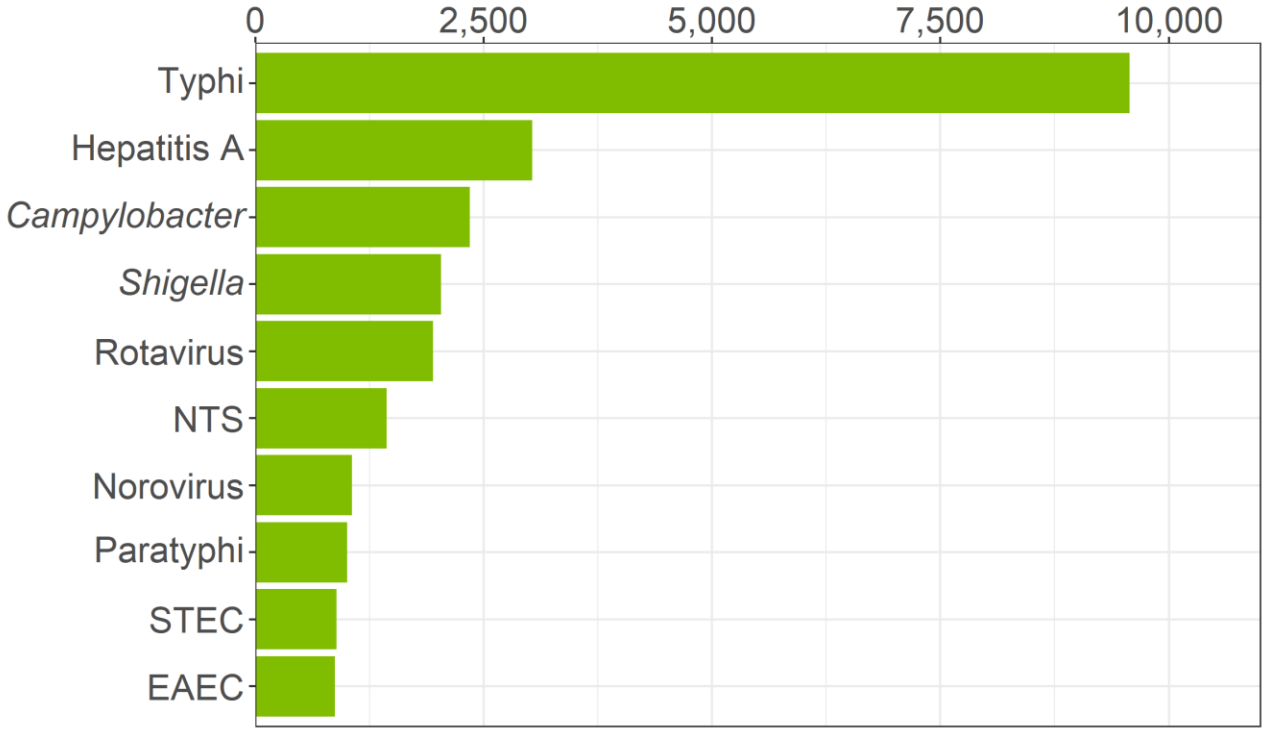


SEAR

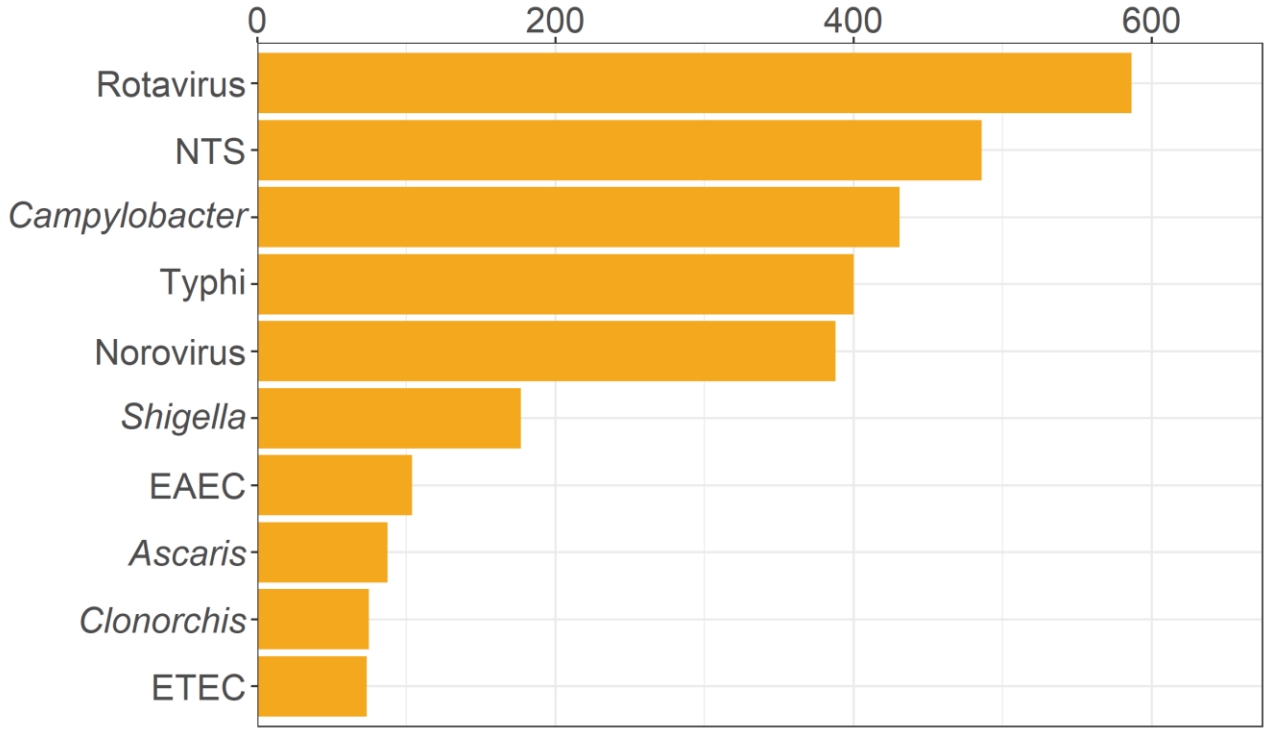


WPR

Top 10 causes of foodborne deaths in SEAR/WPR among children < 5 years of age

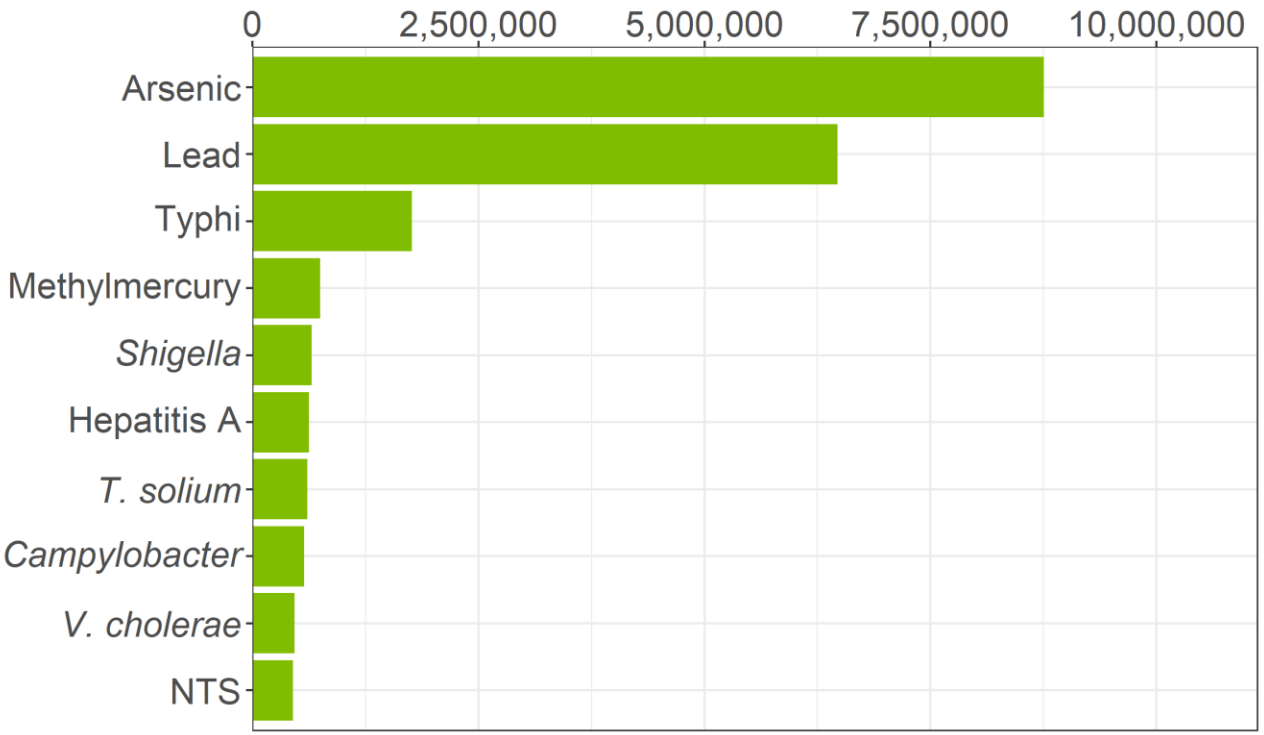


SEAR

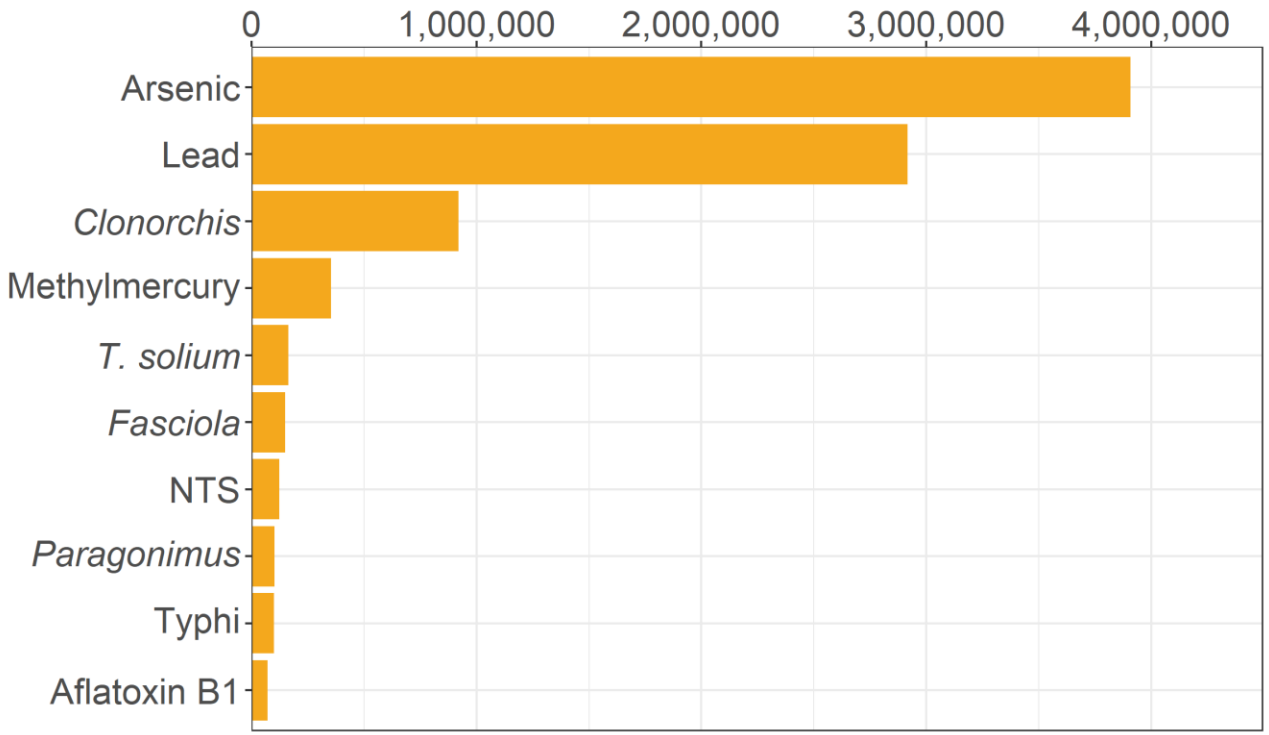


WPR

Top 10 causes of DALYs due to foodborne diseases in SEAR/WPR 2021 (in millions)



SEAR



WPR

Acknowledgements

WHO secretariat
FERG members
Team at Sciensano
Over 200 scientists for structured expert judgement study
Over 120 experts for systematic reviews
Experts who provided the economic estimates
Countries that participated in the consultation processes

Thank you