Rijksinstituut voor Volksgezondheid
en Milieu
*Ministerie van Volksgezondheid,
Welzijn en Sport*

Report of pilot capacity building workshop 'Estimating the national burden of foodborne disease'

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RIVM: National Institute for Public Health and the Environment of the Netherlands

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Why estimate the foodborne burden of disease (FBD)?

- FBD cause considerable morbidity and mortality
- FBD are complex: numerous hazards, numerous health outcomes, effects on different time scales
- Limited data availability: tip of the iceberg
- Implications for food safety policies: where to focus

What is FERG?

FERG = **F**oodborne disease burden **E**pidemiology **R**eference **G**roup

Initiative of the World Health Organization (WHO) Department of Food Safety, Zoonoses and Foodborne Diseases (FOS) together with its partners

Start: 2007

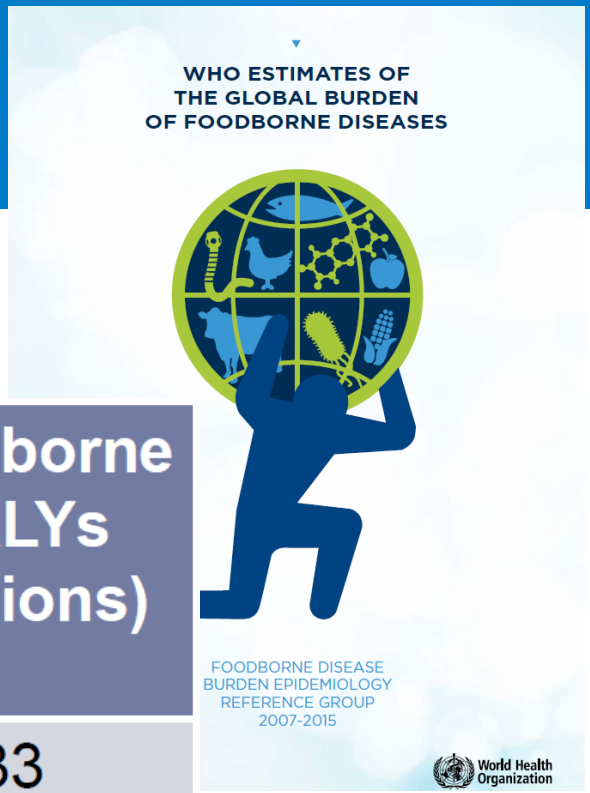
Aim: To enable policy-makers and other stakeholders to set appropriate, evidence-based priorities in the area of food safety

Deliverables: Global burden of foodborne disease estimates:

systematic production of comparable estimates of the burden of 31 foodborne agents

Example of key FERG results

Hazard group	Foodborne illnesses (millions)	Foodborne deaths (thousands)	Foodborne DALYs (millions)
All	600	420	33
Diarrheal	549	230	18
Invasive	36	117	8
Helminths	13	45	6
Chemicals	0.2	19	0.9



Reference: Havelaar et al. (2015) WHO Global Estimates and Regional Comparisons of the Burden of Foodborne Disease in 2010. PLoS Med 12(12): e1001923. DOI:10.1371/journal.pmed.1001923

Key results

- Annually, 1 out of 10 people in the world suffer from foodborne disease

- Diarrheal diseases are most common causes of illness (550,000 cases) and death (230,000 deaths)

- Diarrheal diseases cause more than half of global foodborne DALYs

Most frequent causes of FBD

Foodborne illnesses:

- norovirus, *Campylobacter* spp., Enterotoxigenic *E. coli*

Foodborne deaths:

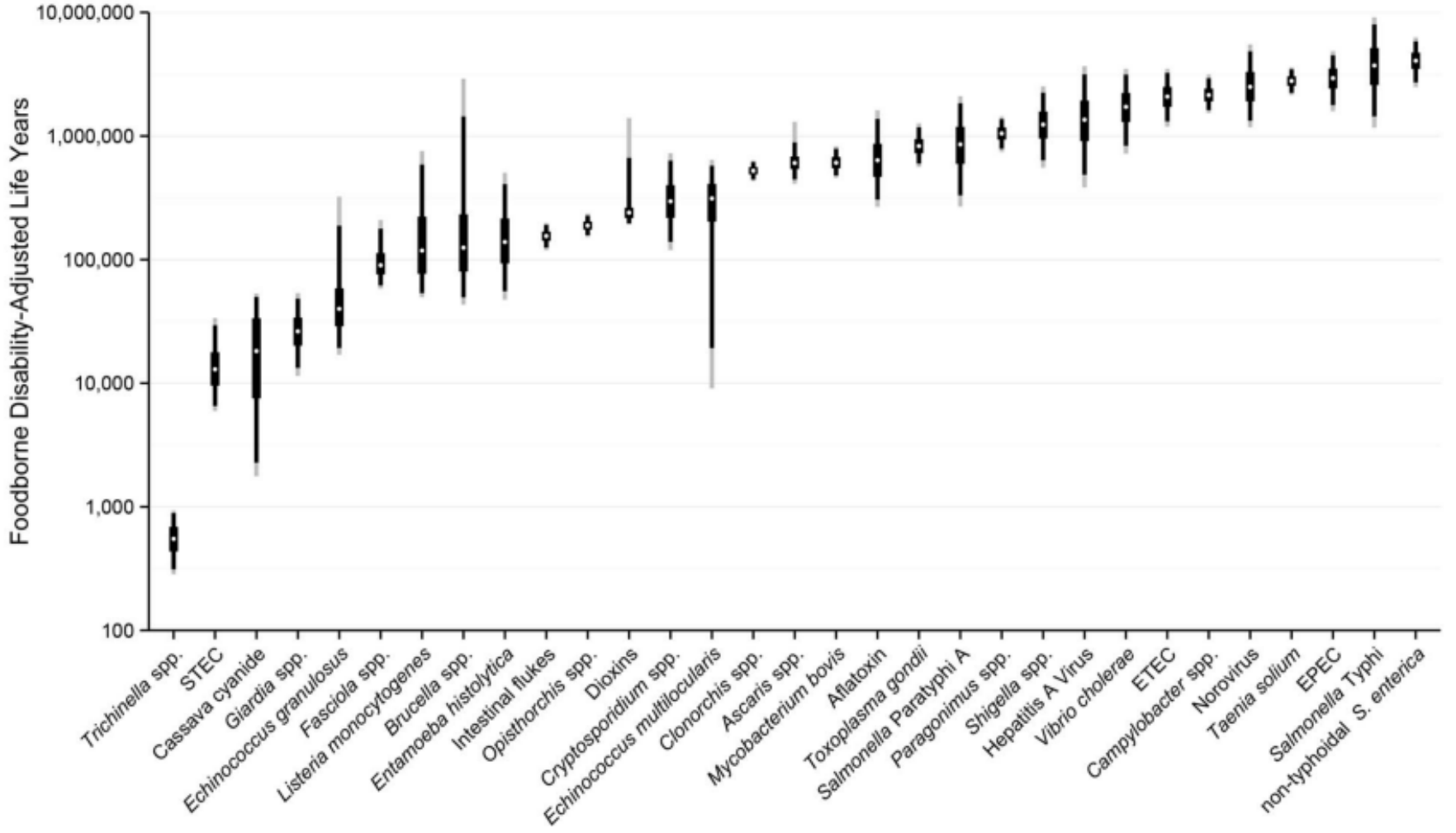
- non-typhoidal *Salmonella enterica*, *Salmonella Typhi*,

Foodborne DALYs:

- non-typhoidal *Salmonella enterica*, enteropathogenic and enterotoxigenic *Escherichia coli*

Reference: Havelaar et al. (2015) World Health Organization Global Estimates and Regional Comparisons of the Burden of Foodborne Disease in 2010. PLoS Med 12(12): e1001923. DOI:10.1371/journal.pmed.1001923

Ranking of foodborne hazards-global DALYs



Why calculate foodborne burden of disease within a country?

- Results in FERG report on global and regional level: country data may be different
- Country BoD results can facilitate to prioritising national food safety policies
- Building capacity

Country studies BoD workshop
one week at location on request

Aim: to familiarise and practice DALY estimations

Content:

- Input surveillance data of foodborne diseases (FBD)
  - Define most important FBD
- Disease outcome trees
- BoD calculation tool (Excel, ECDC BCoDE)
- Compare FBD DALY estimates
- Food safety policies: define interventions
- One health approach

Country studies BoD course

Countries active role: preparedness before the course

- Data on FBD surveillance in your country
- Invite participants: health epidemiologist/scientist and policy makers with background in infectious diseases surveillance, outbreak investigations and food safety
- Organise logistics
- WHO CC for Risk Assessment of Pathogens in Food & water and WHO jointly provide course content and teachers.

	DAY 1 (14 jan)	DAY 2 (15 jan)	DAY 3 (16 jan)	DAY 4 (17 jan)	DAY 5 (18 jan)
8:45	Coffee and tea				
9:00	Welcome and introductions (Lucie)	Reflections and learning goals (Lucie)	Reflections and learning goals (Lucie)	Reflections and learning goals (Lucie)	Working on individual paper
9:15					
9:30	Lecture 1: Introduction to foodborne burden of disease (Joke)	Lecture 4: Hazard selection (Juanita)	Lecture 6: DALY calculation - uncertainty & tools (Lucie)	Lecture 8: Context and reporting (Lucie)	
9:45					
10:00		Lecture 5: Data collection (Juanita)			
10:15					
10:30	Coffee and tea	Coffee and tea	Coffee and tea	Coffee and tea	
10:45					
11:00	Lecture 2: Methodological framework and scientific approach (Lucie)	Practical 2: Data collection & calculation of the burden of disease using Excel	Practical 3: Calculation of the burden of disease using BCoDE	Lecture 9: Knowledge translation (Joke)	
11:15					
11:30					
11:45				Practical 5: Knowledge translation	
12:00					
12:15					
12:30	Lunch	Lunch	Lunch	Lunch	
12:45					
13:00					
13:15					
13:30	Lecture 3: Situation analysis (Juanita)	Practical 2 continued	Practical 3 continued	Practical 5 continued	
13:45					
14:00			Lecture 7: Source attribution (Joke)		
14:15				Practical 5 Pitches	
14:30					
14:45					
15:00	Coffee and tea	Coffee and tea	Coffee and tea	Coffee and tea	
15:15					
15:30	Practical 1: Situation analysis	Practical 2 Pitches	Practical 4: Source attribution	Q&A session	
15:45					
16:00					
16:15	Practical 1 Pitches		Practical 3 & 4 Pitches	Reflection and closure	
16:30					
16:45					
17:00					Paper submission

Pilot workshop

- 14-17 January 2019 pilot workshop
- In cooperation with Utrecht University
  One Health MSc programme
- Students + RIVM colleagues
- Lectures by Joke van der Giessen, Juanita Haagsma, and Lucie Vermeulen

Universiteit Utrecht

Evaluations of the pilot workshop

Scale of 1 (bad) to 5 (very good)

Overall mean ratings	
The usefulness of the course content	4.3
The overall quality of the content in the course	4.3
The quality of the course organization	4.5
Overall course rating	4.4

Quotes from students

"Enough time for practicing is really effective to get a deeper understanding of calculating DALYs"

"The lectures were instructive and helpful"

"Good to know how to present your data to stakeholders"

"The pitch presentations, I liked it a lot. The most valuable were reviews from teachers. We can learn critical thinking on data presentations"

Questions?

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For your information:

https://www.rivm.nl/en/who-collaborating-centre-risk-assessment-of-pathogens-in-food-and-water

https://www.who.int/activities/estimating-the-burden-of-foodborne-diseases

https://www.who.int/foodsafety/areas_work/foodborne-diseases/ferg2/en/

Overview of lectures and study objectives

1. Introduction burden of foodborne disease

- This module provides insight into the questions:
- Why estimate the burden of foodborne disease?
- What is the FERG?
- Main results of the FERG
- Importance of country studies

2. Methodological framework and scientific approach

- This module provides insight into the questions:
- What is a Disability Adjusted Life Year (DALY)?
- Which input data are needed to calculate DALYs?

3. Situation analyses

- This module provides insight into the questions:
- What is a stakeholder?
- Importance of situation analysis
- Methods to perform stakeholder analyses

4. Hazard selection

- This module provides insight into the questions:
- Which hazards were selected by FERG and what was the rationale for the choices?
- Which hazards were selected for previous country studies?
- What should be considered as prompts to identify local hazards?

5. Data collection process

- This module provides insight into the questions:
- Which hazard specific data are needed and which options are available?
- Which country specific data are needed?
- Which other data are needed?

6. Computation

- This module provides insight into how to use the R-based DALY calculator.

7. Source attribution

- This module provides insight into the questions:
- What is source attribution?
- Which hazards need attribution?
- Which regional estimates for attribution are available?

8. Context and report

- This module provides insight into the questions:
- Which studies may be considered to provide comparative contextual information?
- Which elements should be described in a comprehensive report of the study?

9. Knowledge translation

- This module provides insight into which issues are involved in using burden information for priority setting and how you can successfully present this information to national decision makers**.**