From metrics to meaning: how can the European Commission benefit from burden estimates?

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Agenda

1. Value of BoD metrics
2. Why researchers / policymakers should care about BoD?
3. Challenges in BoD research
4. Place BoD in the EU Policy Context
5. Brief contextualization on DG HERA
6. Practical case

Why and how BoD is relevant for decision making?



1. Value of BoD metrics

- Standardised way to measure population health impact
- Allows comparisons across diseases, countries, and over time
- Highlights inequalities and vulnerable groups



2. Why Researchers / Policymakers should care?

- Provide robust & comparable evidence-based decision-making on population impact
- Identify leading causes of disease and to settle prioritization agenda
- Monitoring health inequalities
- Enable cost-effectiveness analyses (cost per DALY averted) to guide interventions and allocate resources




What gets
measured,
gets done

3. Challenges in BoD research

- **Data gaps & harmonisation** across countries (reliable and comparable)
- **Methodological complexity** (risk factor attribution, uncertainty)
- **Communicating results** beyond academia



3. Challenges in BoD research

2004 Disease or injury	As % of total DALYs	Rank	Rank	As % of total DALYs	2030 Disease or injury
Lower respiratory infections	6.2	1	1	6.2	Unipolar depressive disorders
Diarrhoeal diseases	4.8	2	2	5.5	Ischaemic heart disease
Unipolar depressive disorders	4.3	3	3	4.9	Road traffic accidents
Ischaemic heart disease	4.1	4	4	4.3	Cerebrovascular disease
HIV/AIDS	3.8	5	5		
Cerebrovascular disease	3.1	6	6		
Prematurity and low birth weight	2.9	7	7		
Birth asphyxia and birth trauma	2.7	8	8		
Road traffic accidents	2.7	9	9		
Neonatal infections and other[a]	2.7	10	10		
COPD	2.0	13	11		
Refractive errors	1.8	14	12		
Hearing loss, adult onset	1.8	15	15		
Diabetes mellitus	1.3	19	18		

Country, Year (Reference Number)	YLDs	YLLs	YLL: YLD Ratio	DALYs
World, 2004 [6]	—	—	—	2,702
Australia, 1996 [8]	263	697	2.7	959
Austria, 1999 [14]	820	1,710	2.1	2,530
Denmark, 1999 [14]	340	1,550	4.6	1,890
Ireland, 1999 [14]	430	1,530	3.6	1,960
Netherlands, 1999 [14]	310	940	3.0	1,260
Norway, 1999 [14]	320	1,410	4.4	1,720
England, 1999 [14]	240	980	4.1	1,220
Wales, 1999 [14]	250	980	3.9	1,230
United States, 1996 [10]	—	—	—	1,450
Iran, 2003 [13]	—	—	—	6,040
South Africa, 2000 [11]	—	—	—	5,348
United Kingdom, 2005, GBD weights	577	526	0.9	1,103
United Kingdom, 2005, UKBOI weights	2,398	526	0.2	2,924

YLL[a] B (95% CI)	P value	YLD[a] B (95% CI)
0.3 (−1.4 to 2.1)	0.728	0.1 (−0.1 to 0.1)
−0.1 (−0.3 to −0.2)	<0.001	−0.1 (−0.1 to 0.1)
−0.8 (−2.5 to 0.9)	0.337	−0.4 (−0.3 to 0.2)
1.6 (0.8−3.1)	0.039	0.1 (−0.2 to 0.3)
- 0.6 (−2.3 to 1.2)	0.535	0.1 (−0.1 to 0.3)
−0.9 (−3.1 to 1.2)	0.404	0.3 (−0.3 to 0.4)
- 0.5 (−2.6 to 1.5)	0.593	0.2 (−0.1 to 0.4)
−1.1 (−4.1 to 2.1)	0.506	−0.1 (−0.6 to 0.3)
0.2 (−1.9 to 2.3)	0.842	−0.1 (−0.3 to 0.3)
−0.2 (−1.7 to 1.3)	0.761	−0.4 (−1.2 to 0.4)
1.1 (−7.9 to + 9.5)	0.795	0.3 (−1.2 to 1.2)
0.9 (−2.7 to + 4.6)	0.606	−0.1 (−0.5 to 0.2)
2.7 (−1.6 to 7.1)	0.214	0.1 (−0.2 to 0.3)
−0.6 (−1.9 to 0.7)	0.332	0.2 (0.1−1.1)
1.1 (−1.5 to 3.6)	0.430	- 0.2 (−0.5 to 0.2)

lity; DALY: Disability-adjusted Life Year; 95% CI: 95% Confidenc

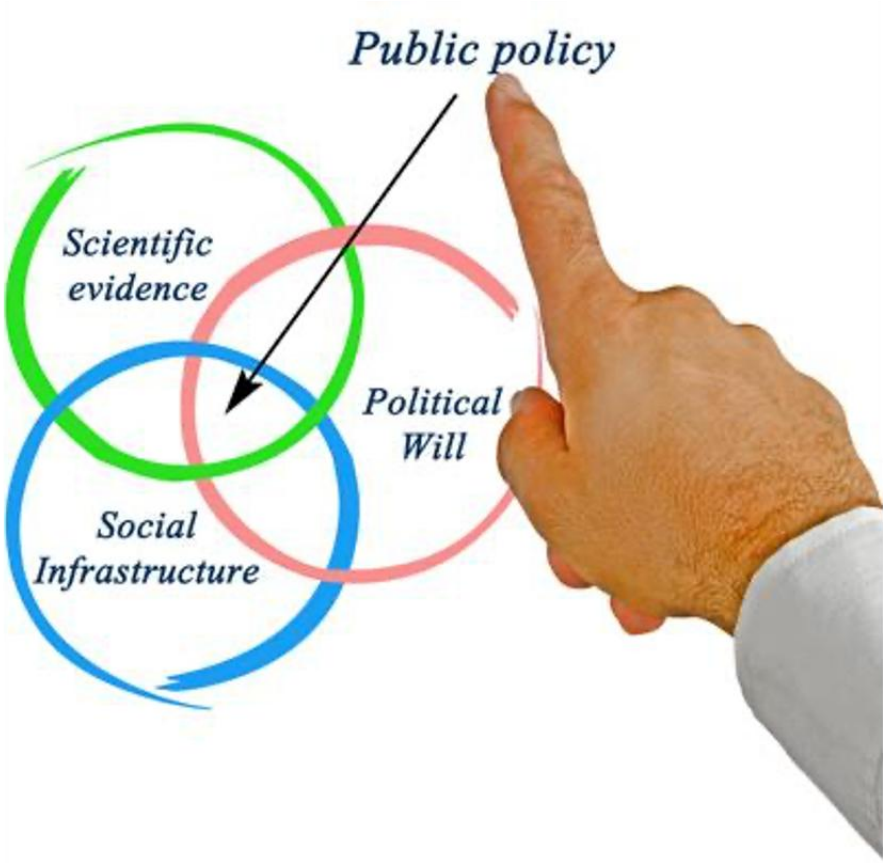
BoD language is not always accessible

3. Challenges in BoD research

Need to translate data into clear narratives:

- What does this mean for priorities?
- Which populations should be targeted?
- Where should resources go first?

Need to Policy-oriented research
By moving from data to story, we can ensure that metrics are transformed into meaning, and meaning into action.



Knowledge translation

4. Place BoD in the EU Policy Context

The EU is tasked to create effective, equitable, and sustainable public policies across diverse MS.

Whenever possible, public policies should be based on the best scientific evidence, best practices, and ethical considerations.



4. How can the Commission benefit from BoD estimates?

1. Priority Setting - Identify the leading causes of disease in the EU / Guide funding allocation and research priorities (e.g. vaccines vs. screening vs. prevention campaigns).
2. Policy Development & Evaluation - Support evidence base for new legislation (e.g. chemicals, tobacco)
3. Monitoring Health Inequalities - Track disease burden across MS and regions / Highlight vulnerable populations for targeted interventions
4. Crisis Preparedness & Resilience – Quantify the expected impact of emerging threats
5. Value for money: Prioritise actions with the greatest health gains per euro invested. Cost per DALY Averted
6. Tool to evaluate the effectiveness of EU-funded actions – making a measurable difference in reducing





5. Brief contextualization on DG HERA

Health Emergency Preparedness and Response Authority



HERA anticipates threats and potential health crises, through intelligence gathering and building the necessary response capacities.

The creation of HERA and its mission

HERA
#HealthUnion



- **When?** Created on 16 September 2021
- **Budget:** EUR 6 billion over 2022-2027
- **Mission:** strengthening Europe's ability to prevent, detect, and rapidly respond to cross-border health emergencies, by ensuring the availability of and access to key **medical countermeasures** (MCM) by looking at the **whole value chain**

= medicines, medical devices, other goods or services that are aimed at combating serious cross-border threats to health

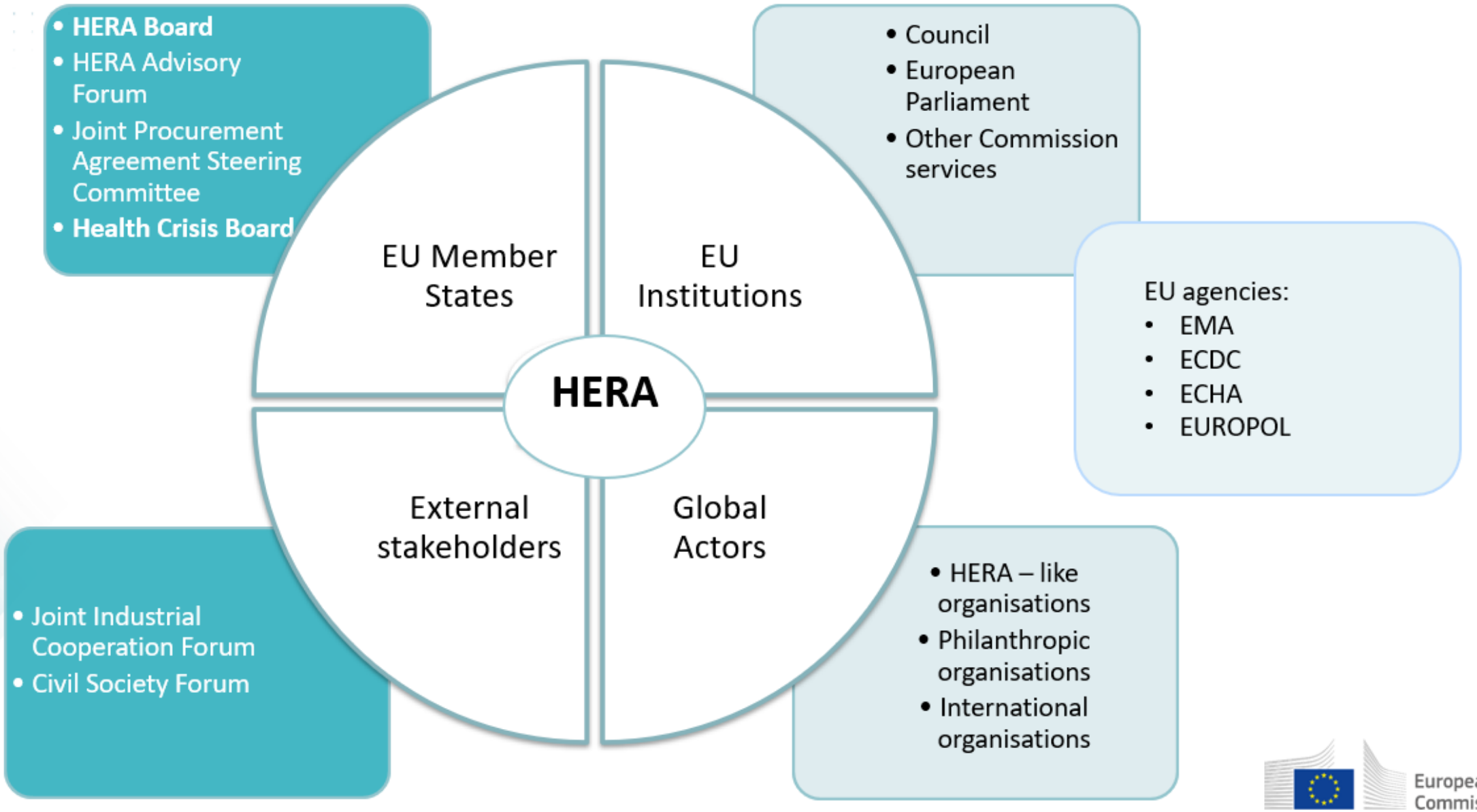
Intelligence gathering and analysis | **Research and development** | **Clinical trials** | **Manufacturing** | **Procurement** | **Distribution Stockpiling**

Access to market

CROSS-SECTOR, MULTI-ACTOR AND INTERNATIONAL COLLABORATION

HERA's Governance

HERA
#HealthUnion



European Commission

MCM strategy

HERA
#HealthUnion

Objectives: reinforce EU preparedness through stimulating and foresting MCM innovation, production and availability; driving joint priority setting; scaling-up public and private partnerships

1. PRIORITY HEALTH THREATS REQUIRING MCM

- Respiratory or contact-based viruses with pandemic potential
- Vector-borne or animal-reservoir viruses with epidemic potential
- Antimicrobial resistance
- Armed conflict related threats and CBRN threats




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COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Preparing the EU for the next health crisis : a Medical Countermeasures Strategy



Respiratory and contact-based viruses with pandemic potential or epidemic potential - highly transmissible viruses with a likelihood of causing large-scale outbreaks



Vector borne or animal-reservoir viruses with epidemic potential - viruses whose spread is accelerated because of climate change and other environmental factors



Antimicrobial resistance (AMR) the emergence and spread of resistant pathogens, intensified by overuse of antibiotics, pollution, climate change and conflicts



Armed conflict related threats and Chemical , biological, radiological or nuclear (CBRN) threats - preparation for worst-case scenarios, be it accidental or human-made

European Commission

MCM strategy

HERA
#HealthUnion

KEY ACTIONS



Surveillance and intelligence system

- EU List of Medical Countermeasures for Priority Threats
- Launch EU and Global Wastewater Sentinel System
- Enhance intelligence both in the EU and globally

Accelerating innovation and scaling up manufacturing

- Launch a Medical Countermeasures Accelerator
- Establish a European Therapeutics Hub
- Create a European Diagnostic Hub
- Launch RAMP UP – a Rapid Agile Manufacturing Partnership for Union Protection

Ensuring access, availability and rapid deployment

- Support rapid response ready to use laboratories
- Establish crisis-procurement guidelines
- Reinforce stockpiling capacities

Driving coordination and collaboration

- Build new global partnerships
- Strenghten civil military cooperation
- Reinforce public private cooperation

Enhancing population preparedness

- Strenghten the EU workforce and invest in quality jobs
- Continue to support health response teams and capacity building
- Enhance citizen's health preparedness, including fighting misinformation



TARGETS BY 2030

New antibiotics to treat resistant infections

New antivirals and vaccines against vector-bome diseases

New diagnostics, PPEs and countermeasures for CBRN threats

Next generation influenza vaccines

European Commission



6. Practical case where BoD can shape EU policy

Dengue

- Is the most widely distributed and rapidly spreading mosquito-borne viral disease in the world.
- **100-400 million** estimated annual infections worldwide (1/2 the world's population live in areas where dengue is endemic or transmission is possible) **- 25,000 deaths/year**.
- **Low case-fatality rate** (0.01–0.05%)
- Vaccines exist but limited to some specific situations (e.g., *Dengvaxia*, *Qdenga*).
- Absence of specific treatment (only supportive care)



6. Practical case where BoD can shape EU policy

Crimean-Congo Hemorrhagic Fever (CCHF):

- Is a severe viral disease caused by a Nairovirus, transmitted by *Hyalomma* ticks, livestock contact, or human-to-human via blood/body fluids.
  - **10,000 to 15,000** estimated annual infections worldwide
- **High case-fatality rate** (10–40%)
- **No available vaccine**. Prevention relies on tick control, protective measures in healthcare, and safe handling of animals.
  - No available **specific antiviral treatment**



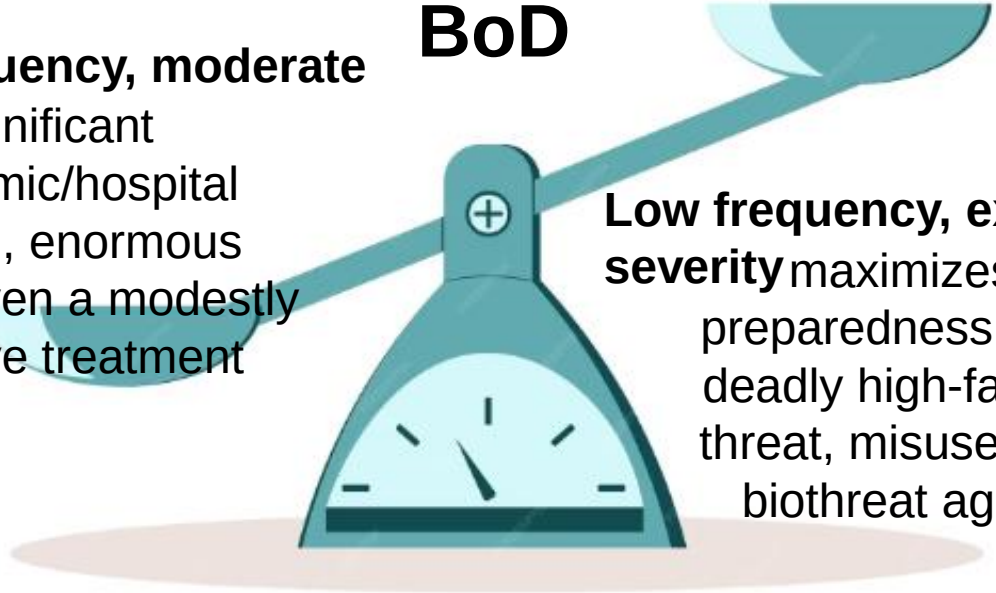
How would you prioritize?

Support development of first antiviral treatment for Dengue

Support development of first antiviral/vaccine treatment for CCHF

BoD

High frequency, moderate severity significant economic/hospital burden, enormous impact even a modestly effective treatment



Low frequency, extreme severity maximizes preparedness for a deadly high-fatality threat, misuse as a biothreat agent

Budget Prioritization

5. Discussion – What is the role of scientific evidence in guiding policymaking?

Despite growing recognition of BoD metrics in supporting policymaking, their use remains limited to certain topics

- What can be done?
- How these metrics can be better integrated into **policy design, priority setting**, and the **evaluation of preparedness interventions?**



Thank you for your attention

