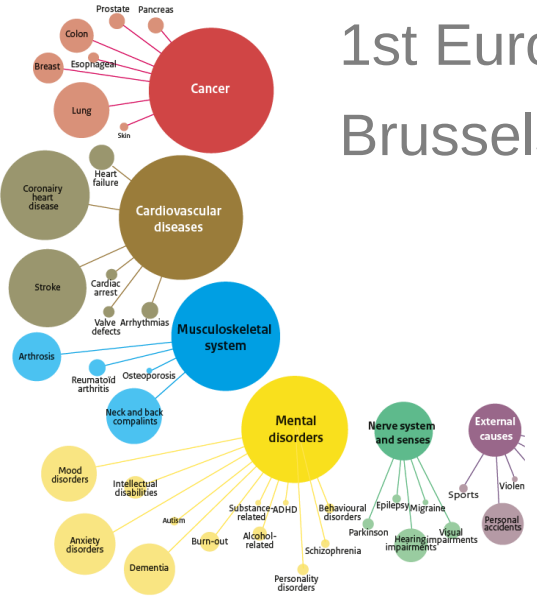
european burden-eu of disease network

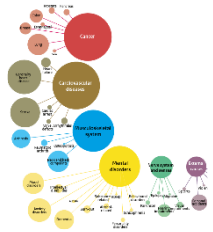
Dutch DALYs
Country Profile Netherlands

1st European Workshop on Burden of Disease

Brussels, Belgium, 18/09/2025

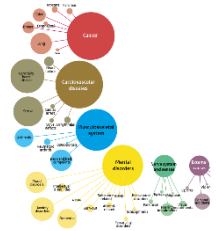


Scope and status



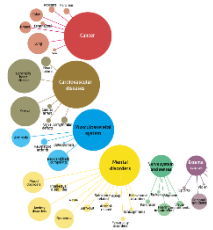
- Since 1997: Dutch Disability Weight Study and Public Health Foresight Study 1997 (Stouthart et al, 1997; Melse and Kramers, 1998), most recent update in 2024 (2022 data)
- Mostly done as part of the Dutch Public Health Foresight study (every 4 years)
- Selection of diseases / causes of death
  - 106 (groups of) diseases/health conditions
  - 80 (groups of) health determinants / risk factors (PAF methodolody)
- Years of life lost (YLL - Years lost due to disability (YLD) – Disability-Adjusted Life Years (DALY)
  - by sex, 5-year age groups
  - at the national level
- Multimorbidity correction (multiplicative, independent)
- No Ill-definded death correction (yet)
- Future projections up to 2050

Recent developments



- Update of Dutch Disability weights
- Update of severity distributions (Dutch Data)
- Update of exposure data and relative risks (PAFs)
- Inclusion of Cost-of-illness i.r.t PAFs
- Update of projections
  - Mortality: poisson regression (envelop method consistent with NSO mortality projections)
  - Morbidity: mostly epidemiological (age-period cohort modelling)
- *Historical DALYs (with new methodology), from 2010*
- *IDD correction*
- *Regional DALYs (at municipality level)*
- *Potential impact fraction (PIF)*
- *Expanding determinants (mental health, genetic factors)*

Knowledge translation

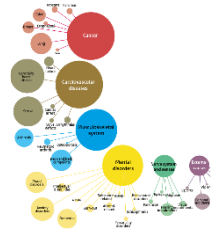


- Part of PHFS (commissioned by MoH)
- Disease Burden as overarching health indicator (DALYs, HALE)
- Link to risk factors as the most important outcome
- All data are available through BoD Dashboard
  (Ziektelast in DALY's | Ziektelastcijfers | Volksgezondheid en Zorg)

Extra efforts needed for:

- Communication of BoD concept
- PAF as theoretical level (→ PIFs)
- Changes in outcomes due to methodological / data improvements

Challenges



- Multimorbidity correction accounting for dependencies
- More determinants (now 25-30% of BoD assigned)
- Accounting for mediation effects of determinants
- Data at different levels (GP, in health care, population level)
- Better Knowledge Translation for proper use / interpretations

european burden-eu of disease network

BELGIUM
COUNTRY PROFILE

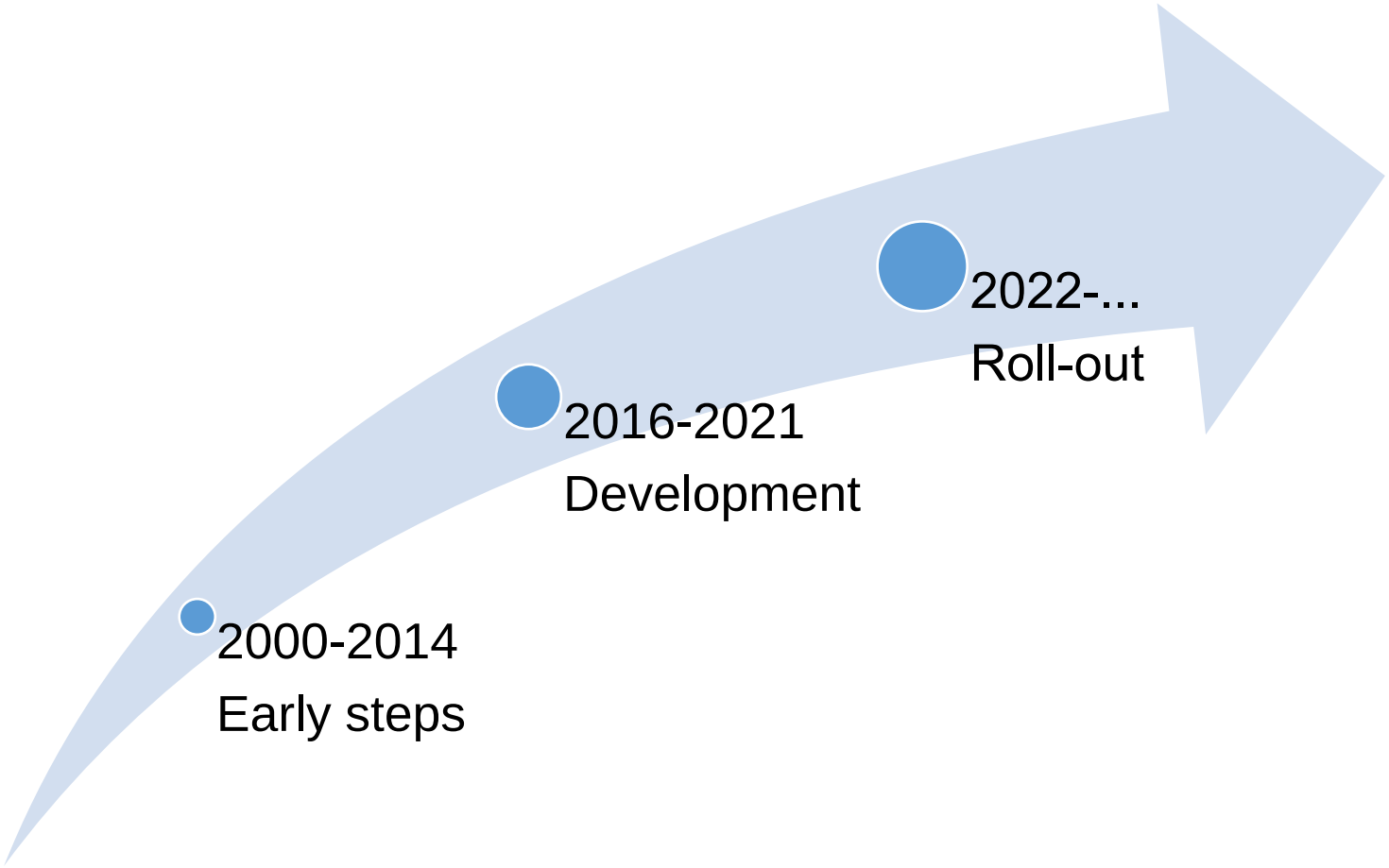
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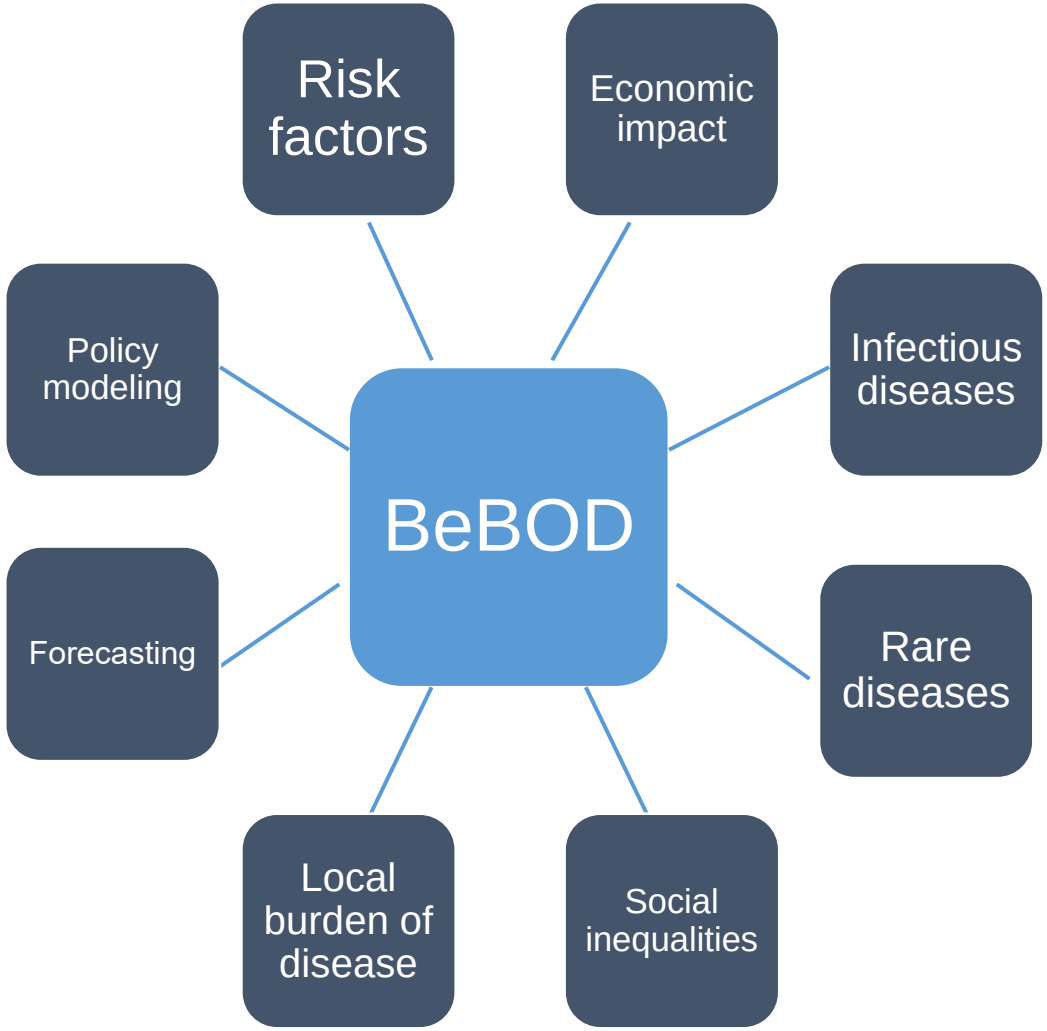
Rani.Claerman@Sciensano.be

sciensano

Belgian national burden of disease study

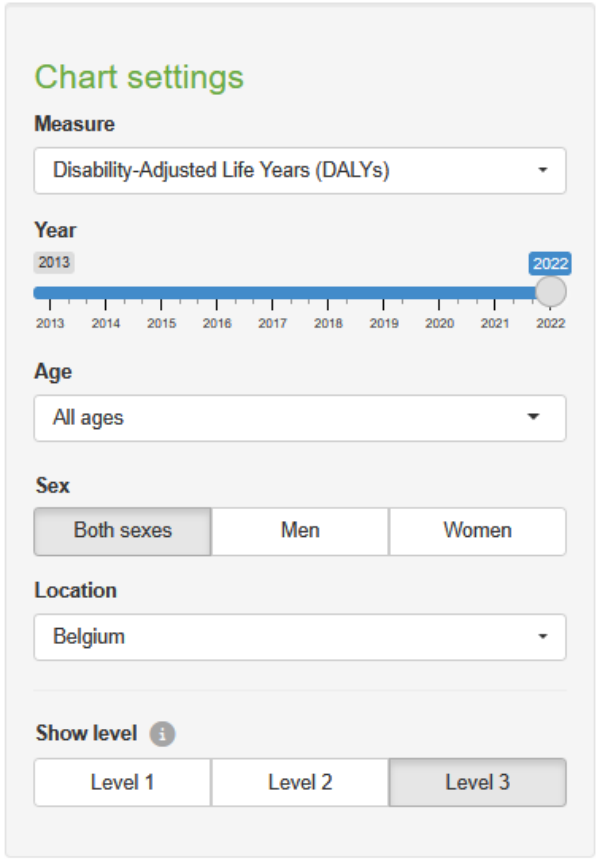


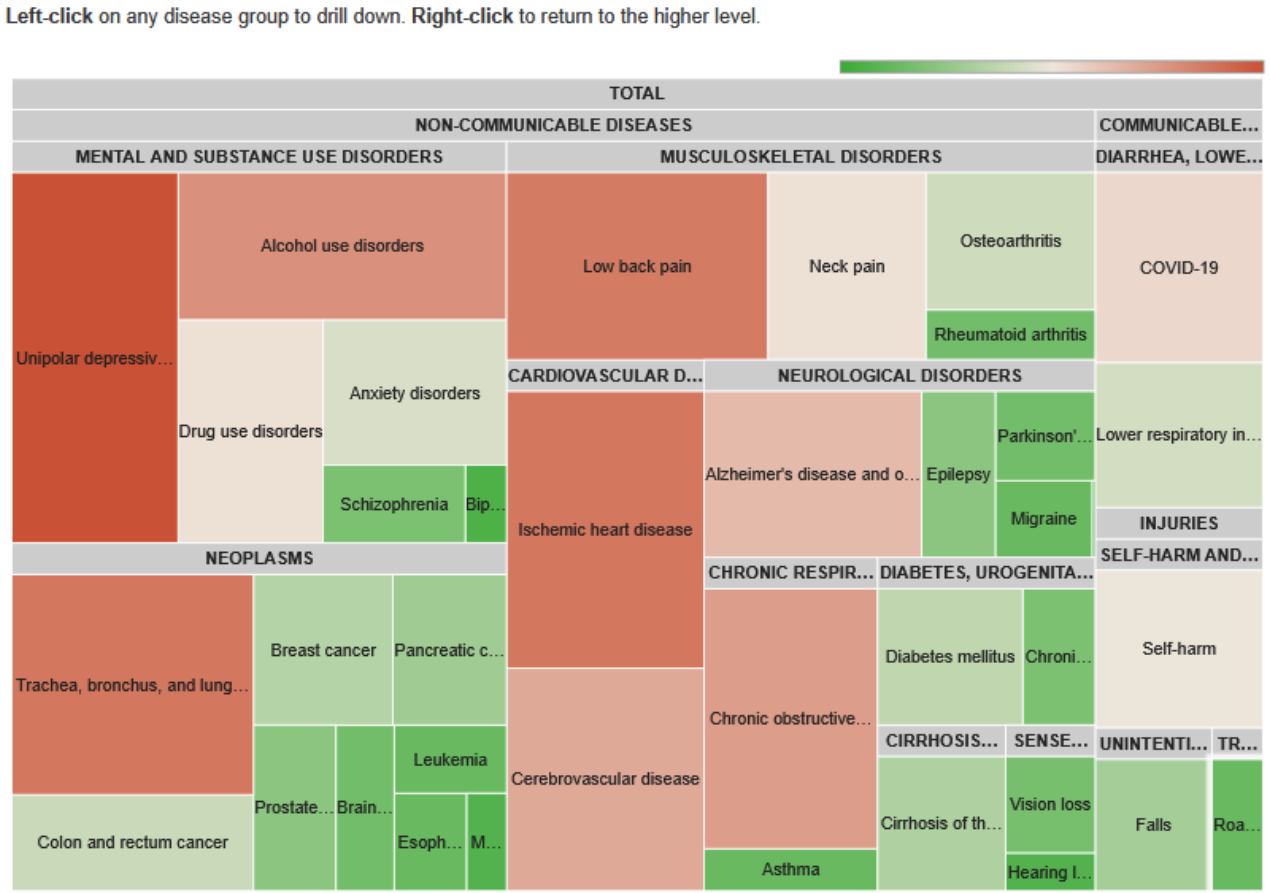
Belgian national burden of disease study



Scope and status

BeBOD



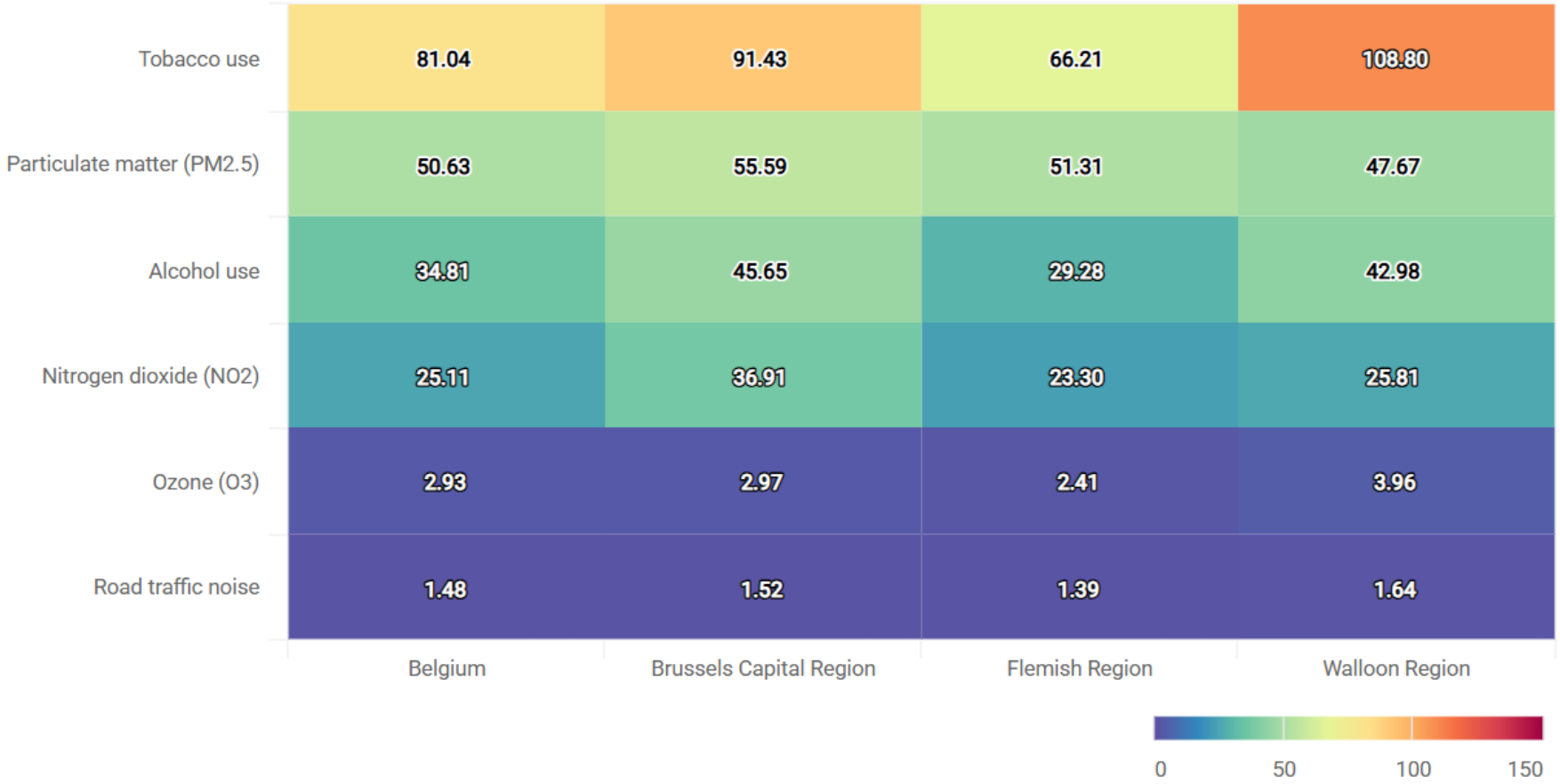


https://burden.sciensano.be/shiny/daly

Recent developments

BeBOD

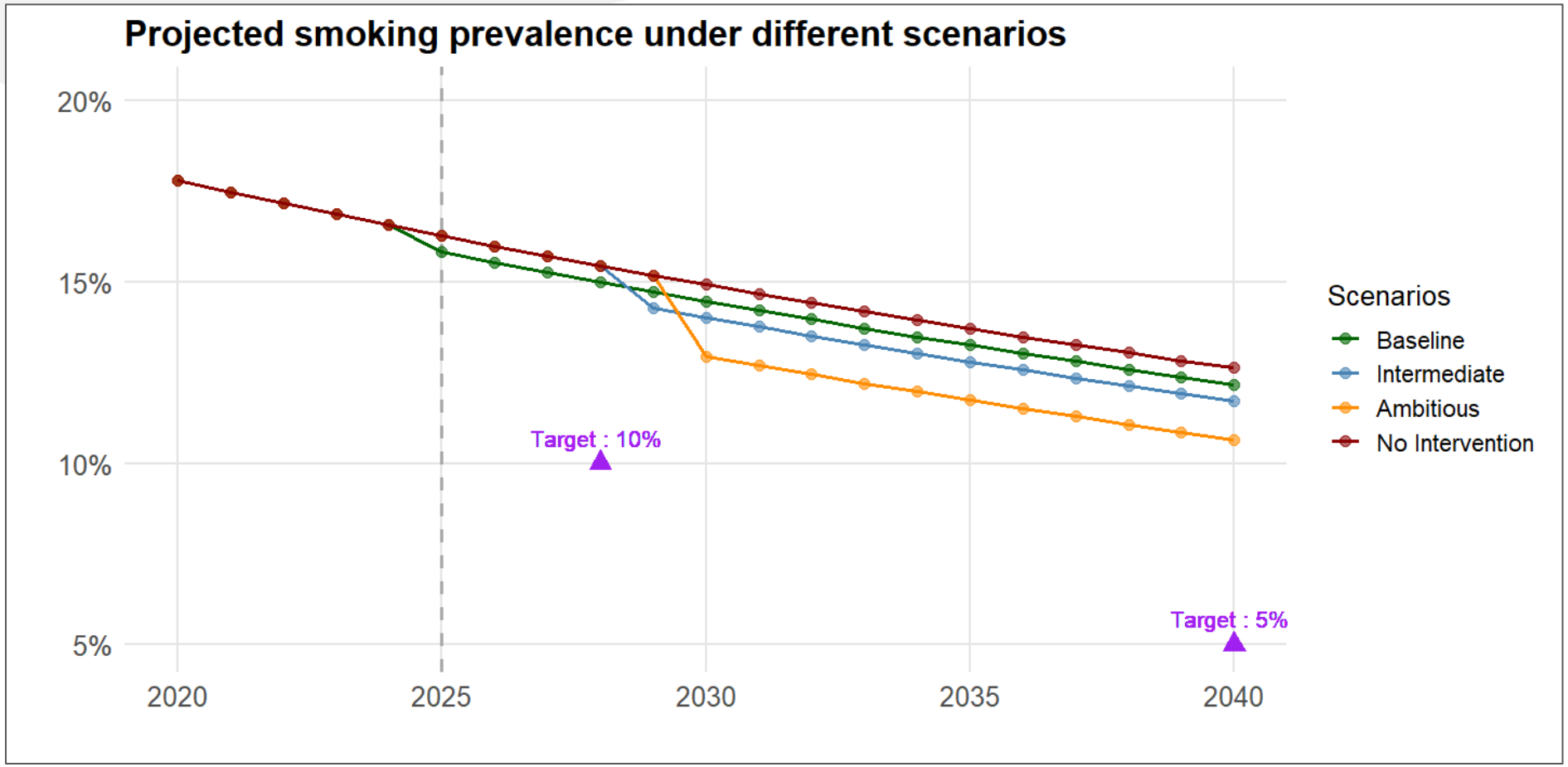
Risk factors



Attributable age-standardized mortality rates in 2021, by region, both sexes

BeBOD

Policy modeling





We simulated the future impact of policy 8.1 and other scenarios of reduction of points-of-sale

Knowledge translation

Explore our estimates via interactive dashboards

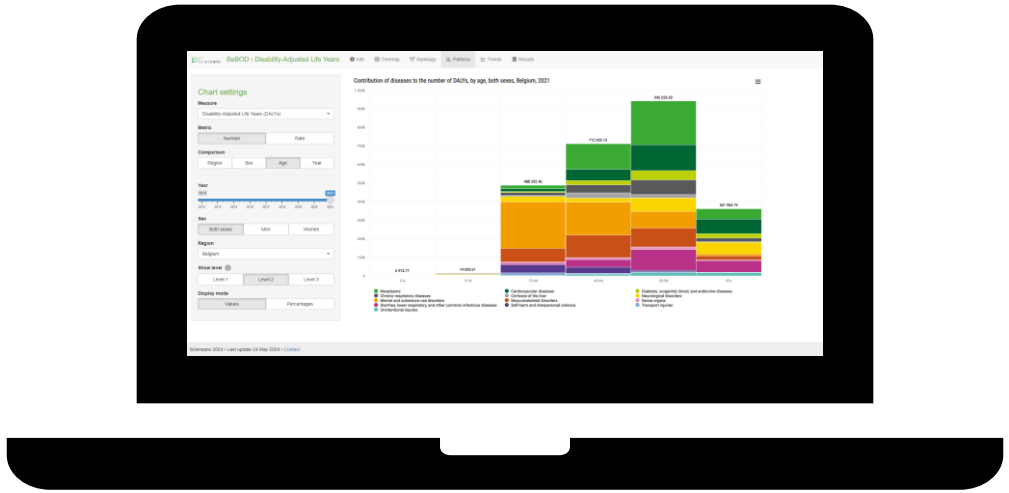
DALY: https://burden.sciensano.be/shiny/daly

Mortality: https://burden.sciensano.be/shiny/mortality

Cancer burden: https://burden.sciensano.be/shiny/cancer

Projections: https://burden.sciensano.be/shiny/projection

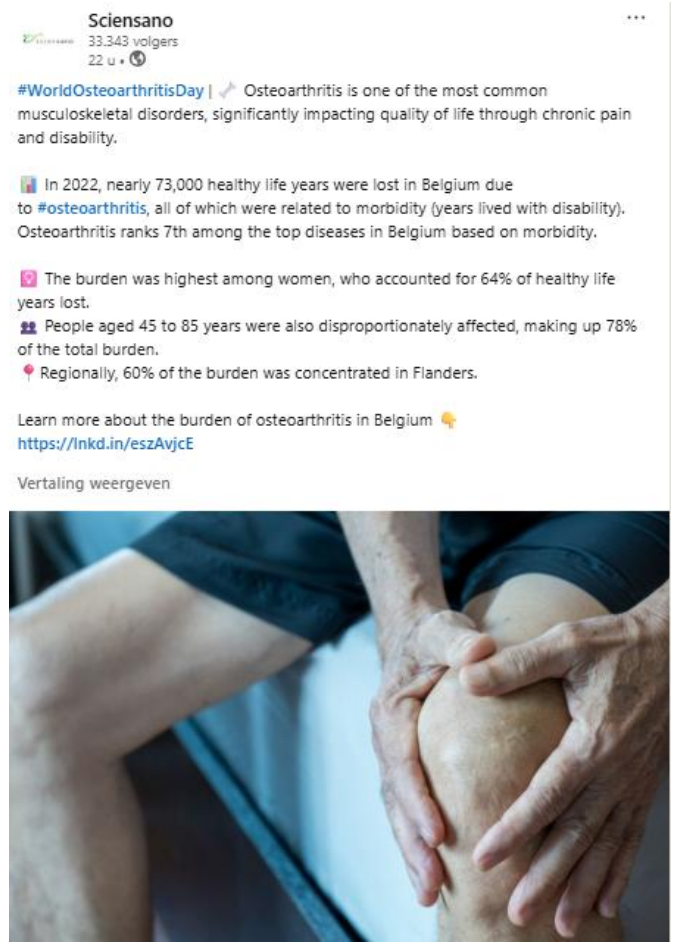
Risk factors: https://burden.sciensano.be/shiny/risk



Knowledge translation

https://www.healthybelgium.be/en/





Challenges



Maintenance of activities



Increasing barriers on data availability



Knowledge translation

BeBOD TEAM

Sciensano

Health Information

Health Indicators unit

Sciensano permanent staff



Brecht Devleesschauwer
Epidemiologist
- Burden estimation



Robby De Pauw
Physical therapist
- Burden estimation



Laura Van den Borre
Sociologist
- Health equity

HSR / BEBOD



Aline Scohy
Demographer
- Mortality



Masja Schmidt
Health economist
- Cost estimation



Kim Fernandez
Sociologist
- Risk factors

Other fixed-term projects



Vanessa Gorasso
Health economist
- Burden estimation
- Risk factors



Harry Vrancken
Epidemiologist
- Cost estimation



Sarah Nayani
Nurse –health scientist
- Risk Factors & YLD estimation



Arno Pauwels
Geographer
- Environmental burden estimation



Sarah Croes
Bio-engineer
- Risk-based projections



Marte Bartholomeeusen
Biomedical scientist
- Environmental burden estimation



Jozefien Wellekens
Bio-engineer
- YLD estimation



Rani Claerman
Biomedical scientist
- Unmet needs evaluation



Claire Dénos
Bio-engineer
- Dietary risk factors



Mathilde Vankelegom
Health economist
- Health equity



Lis Gys
Physical therapist
- Cost of dementia



Arne Noppe
Biomedical engineer
- Rare diseases

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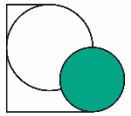
ITALY
COUNTRY PROFILE

1st European Workshop on Burden of Disease

Brussels, Belgium, 18/09/2025



ITALIAN GBD INITIATIVE



BURLO

IRCCS Burlo
Istituto di ricovero e cura a carattere scientifico "Burlo Garofolo" di Trieste

REGIONE AUTONOMA FRIULI VENEZIA GIULIA

LORENZO MONASTA

NATIONAL COORDINATOR OF THE ITALIAN GBD INITIATIVE
PRINCIPAL GBD COLLABORATOR & MEMBER OF THE GBD SCIENTIFIC COUNCIL

Clinical Epidemiology and Public Health Research Unit
Institute for Maternal and Child health - IRCCS Burlo Garofolo, Trieste

Scope and status – Italian GBD Initiative

- Born in 2016. Network of GBD Collaborators with Italian affiliation.

  - Now 170 collaborators, 20 thematic research groups, 20 institutes signed a collaboration agreement.
  - **Objectives:** engage with IHME, share data and knowledge, assess GBD estimates, align data and estimates, use and spread the use of GBD estimates for planning**.**
  - Groups: **Cancer**, CVDs, **Diabetes**, Neuro, **Mental Health**, MSK, CKD, Skin, MCH, Infectious and AMR, Risks (Environment, Smoke, Alcohol, BMI, Nutrition), Aging, Occupational Health, Health Economics.

  - **Subnational estimates for Italy since GBD 2021**

Recent developments

- **Methodological extensions or innovations** – comorbidity, Tuscany/ACAB, Emilia Romagna microdata, AGENAS (Italian National Agency for Regional Healthcare Services), Ministry of Health/AIE
- **New publications:** Italy GBD 2021 capstone, 4 hematological cancer papers on eClinicalMedicine, working on Italy GBD 2023 risk factors capstone**.**
- **Benedetta Armocida won the GBD 2025 Emerging Research Award.**
- **Delegation to Seattle – 6-10 October**

Knowledge translation

- Still behind in the process…
- **BoD culture is spreading, despite our inabilities :)**
- **Scientific articles, posts on socials…**
- **AGENAS & MoH?**

Challenges

- **Data limitations** – access, quantity and quality: e.g. GDPR and Hospital Discharge Records (MoH), outpatient info, cancer registry, CoDs
- **Engagement with IHME:** sharing of data, definitions, methods, publication process
- **National Coordination** – 170 researchers, 20 institutes
- **Engagement with National Institutions** - Raise stakeholders' awareness, political/institutional buy-in...

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AUSTRALIA
COUNTRY PROFILE

1st European Workshop on Burden of Disease

Brussels, Belgium, 18/09/2025

Karen Bishop, Australian Institute of Health and Welfare
Australian Burden of Disease Study

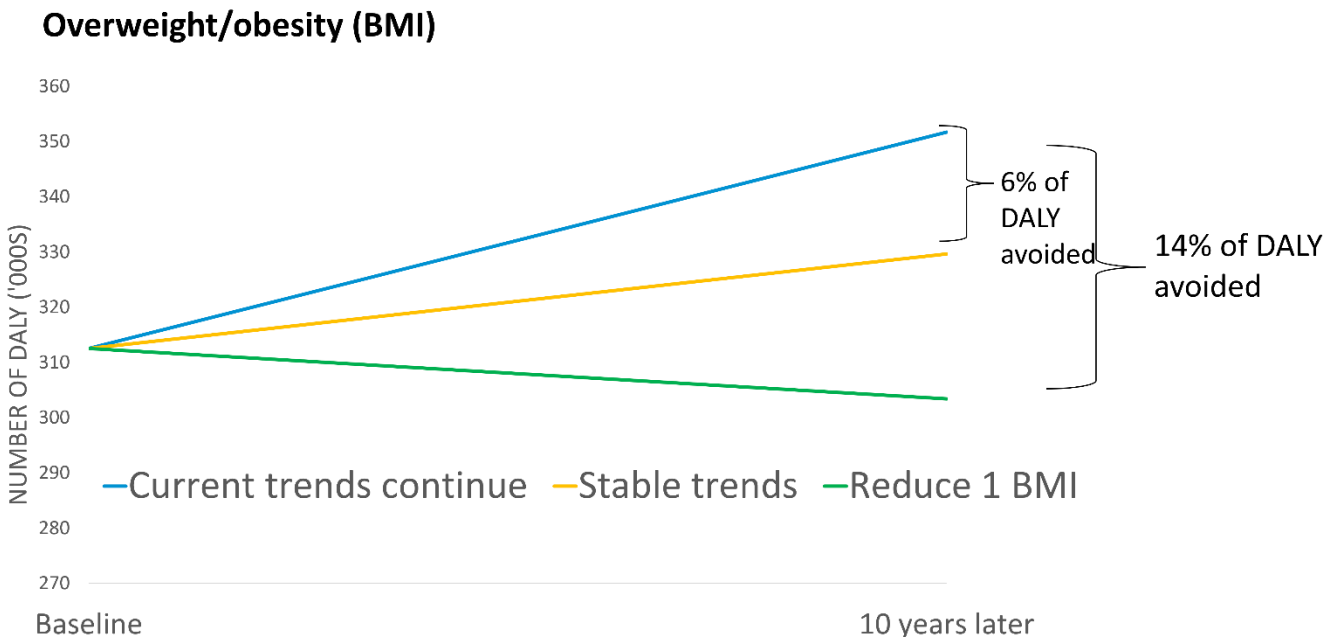


Scope and status

- Australian Burden of Disease Study - overview
  - 8 National studies: 1996, 4 major updates 2003, 2011, 2015 & 2018, 3 annual updates (2022, 2023, 2024 projected) with ABDS 2026 underway
  - 3 First Nation studies 2011, 2015 & 2018 with 2022 in progress
  - Independent assessment using Australian data and methods; ABDS system (database)
  - YLL, YLD and DALY for 220+ diseases; Attributable burden for 20+ individual risk factors; Health-adjusted life expectancy
  - National, state/territory, remoteness areas and socioeconomic areas; small area estimates for the first time in ABDS 2026

Scope and status

- Australian Burden of Disease Study – additional components
  - Scenario modelling for key risk factors
  - Drivers of change
  - Disease expenditure
  - Health system spending due to modifiable risk factors



Recent developments

- Annual updates using nowcasting methods
- Use of machine learning to inform choice of projection models
- Use of linked data to inform prevalence
- Small area burden estimates
- New diseases and risk factors
- Scoping study on feasibility of BoD estimates for CALD populations

CALD Culturally and linguistically diverse

Knowledge translation

- National Preventive Health Strategy 2021 to 2030
  - Aim 2: All Australians live in good health and wellbeing for as long as possible

Table 1.2: Tracking progress against the target in Aim 2

Target	Baseline value[1]	Latest value[2]	Tracking against target[3]	Comparison change
Target 1: Australians will have at least an additional two years of life lived in full health by 2030.	In 2018, HALE[5] at birth was **71.2** years for males (88.3% of life lived in full health) (AIHW 2024b).	In 2024, HALE[5] at birth was **71.7** years for males (87.8% of life lived in full health) (AIHW 2024b).	No change 	Males: 0.5 years † (increase)
Target 1: Australians will have at least an additional two years of life lived in full health by 2030.	In 2018, HALE[5] at birth was **73.6** years for females (86.7% of life lived in full health) (AIHW 2024b).	In 2024, HALE[5] at birth was **73.8** years for females (86.3% of life lived in full health) (AIHW 2024b).	No change 	Females: 0.2 years † (increase)

Challenges

- Primary care data (major data gap)
- Australian-specific severity distributions
- Comorbidity adjustment
- Frequency and sample size of national health surveys
  - Limits subnational and unable to use for small area estimates (including risk factors)
- First Nations health data quality
- Person-centred versus area-based data
- Funding model

european burden-eu of disease network

FRANCE

BURDEN OF DISEASE STUDY LEAD BY SANTE PUBLIQUE FRANCE

1st European Workshop on Burden of Disease (BoD)

Brussels, Belgium, 18/09/2025

Tatjana Makovski, Patrick Rolland, Laurence Guldner on behalf of the French GBD network

Santé publique France

Scope and status

- Santé publique France (SpFrance) estimates GBD indicators in collaboration with the Institute for Health Metrics and Evaluation (IHME), since November 2024
- ***Exploratory work*** to estimate BoD indicators* has been performed prior to IHME collaboration, however the ***lack of internal resources***, and the ***need to estimate reproducible indicators with a standardised method at subnational, national and international level***, lead to a partnership with IHME
  - Nevertheless, this collaboration still mobilises at least 20 people at SpFrance; the staff size and efforts are likely to grow
  - Reminder : SpFrance employs <600 staff members (approx. the size of IHME) for the population of 67 millions
  - SpFrance and partners strives to improve the quality of “primary” data and understand the methods implemented by the IHME (not a service provision attitude)
- The key focus areas of the study : ***Causes of death (CoD), non fatal/clinical BoD*** indicators (GBD round 2025) and ***risk factors*** (GBD round 2027-2028)
- Geographical coverage : ***national and subnational estimates*** (18 French regions => 13 hexagonal regions + 5 overseas regions). Overseas regions introduce a challenge (lack of data), that requires special reflexion
- Objective :
  - To use these data to help national and regional health authorities ***to define and evaluate public health policies***
  - These data will help SpFrance to ***prioritize the surveillance tools***
  - Relevance of the ***knowledge translation on BoD*** in France

* - Haneef R et al. Social inequalities in COVID-19-related years of life lost in metropolitan France, 2020. Arch Public Health. 2025 Aug 22;83(1):215. doi: 10.1186/s13690-025-01704-2. PMID: 40846981; PMCID: PMC12372224.

- Haneef R et al. Estimating years of life lost due to premature mortality at regional level in France in 2017, using a probabilistic redistribution approach. BMC Public Health. 2025 Jul 3;25(1):2375. doi: 10.1186/s12889-025-23559-6. PMID: 40611076; PMCID: PMC12224698.

Recent developments

- IHME already produces the estimates for France for years (based on open access information, e.g. databases, publications, etc.)
- In order to ensure the most precise estimates, ***SpFrance identifies and provides*** to IHME the most ***relevant and complete databases*** for each step of the process (population data, data on education and fertility, GDP, mortality data, clinical data based on e.g. French medico-administrative database - SNDS, etc.)
- To date, ***86 "bundles"*** (pathologies associated with ICD10-ICD9 code lists, 45 incidence, 41 prevalence) extracted data on ***hospitalisation only*** from SNDS; several individual pathologies extracted using ***SpFrance algorithms*** (hospitalisation + other sources) ***; CoD data*** extracted (GBD map 2023), etc. => approaching to the results ***vetting phase***
- SpFrance contributes to the IHME method by ***learning and adopting the indicator estimation programs*** and ***helping evolve the IHME estimates*** using e.g. the SpFrance algorithms for "crosswalk" process or applying the French causes of deaths patterns for CoD estimations or using hospitalisation ratios of ≥1 overnight stay vs day hospital/home hospitalization
- Data that are not available online and which may increase a risk of ***identification of individuals*** are processed within SpFrance using IHME models and censured before transfer, in ***compliance with French data protection requirements***

Knowledge translation

- Considering the early stage of our work on GBD indicators estimation, we are still learning about how to translate knowledge, however some preparatory steps are in progress:
  - Building network of experts around BoD indicators within SpFrance and among partners in France who will participate in results interpretation and communication
  - **Initial discussions with regional public health authorities to gage interest and initiate reflexes on how this work can be useful to public health planning ("Health regional plan", duration of 10 years in average)**

⇒Very keen to learn about the experience from other European countries

France partners :

Inserm

National Institute of Health and Medical Research

CépiDc

Centre d'épidémiologie sur les causes médicales de décès

Center for Epidemiology of Medical Causes of Death

INSEE

INSTITUT NATIONAL DE LA STATISTIQUE ET DES ÉTUDES ÉCONOMIQUES

National Institute of Statistics and Economic Studies

Drees

DIRECTION DE LA RECHERCHE, DES ÉTUDES, DE L'ÉVALUATION ET DES STATISTIQUES

The Directorate for Research, Studies, Evaluation, and Statistics

SÉCURITÉ SOCIALE

L'Assurance Maladie

Caisse Nationale

National Health Insurance Fund

Registres des cancers

FRANCIM

Cancer registries

Challenges

- We are aware of the specific features of IHME methods, and the fact that other European countries adopted different ways to estimate BoD indicators
  - ⇒Willingness to learn from here-present countries using different methodology and potentially replicate certain analysis for perhaps closer comparability
  - ⇒Opportunity for SpFrance to reinforce participation in European Burden of Disease Network working groups to share work in progress, difficulties and stimulate support
- Other challenges:
  - In the first instance and in order to optimise the work, SpFrance focused on CoD and non-fatal BoD aspects, nevertheless the risk factors aspect will be soon addressed with the most pertinent data
  - Knowledge translation on BoD in France and learning to use the indicators in public health policy reflections
  - Our preference to choose to move faster towards knowledge translation / production
  - Human resources available for the project

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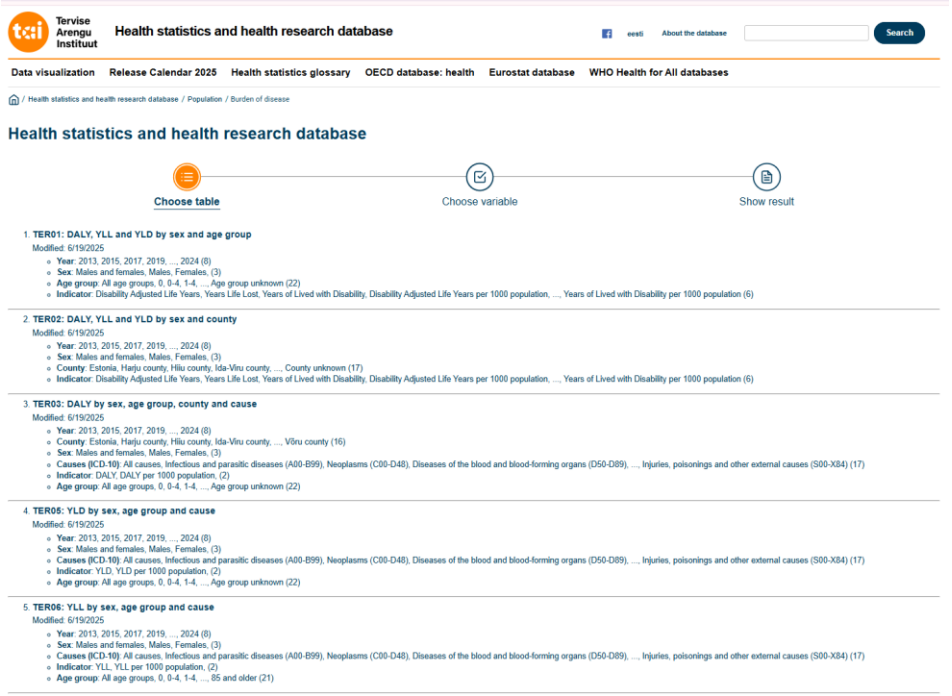
ESTONIA
COUNTRY PROFILE

1st European Workshop on Burden of Disease

Brussels, Belgium, 18/09/2025

Scope and status

- First national study in **2003**, disability weights tailored to Estonia published 2009
- Since **2013**, regular publications; annual updates since **2021**
- Independent assessment (not part of GBD), but methods based on GBD
- Focus areas: YLD, YLL, DALY across all disease groups, county-level, results by sex and age groups
- Published in TAI health database



Recent developments

- **Timely updates**: since 2021 we publish results annually
- **Additional components**:
  - Burden of environmental stressors (BEST-COST project)
- **Growing visibility**: results featured in media, DALY indicator in National Health Plan, indicators in HSPA
- **Growing networks** – both nationally and internationally

Knowledge translation

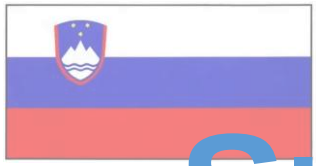
- Media coverage and interviews have helped raise public awareness of health trends
- Published report: Disease burden of the Estonian population in 2023 (overview of trends over time also)
- Strengthening output and communication is a priority for making impact
- BoD data is not consistently used in policy-making
- Prepare to address key questions: Why? (e.g. why is diabetes becoming more prevalent?) and How? (e.g. how can we reduce its prevalence?)
- Work in progress: county profiles for local municipalities, infographics



Challenges

- YLD calculations are based on health insurance data → in 2024, 93.81% of registered population had insurance; impact of uninsured population on morbidity remains difficult to assess
- Disability weights are outdated
- Methodological simplifications: no comorbidity modelling, no garbage code redistribution (approx. 5-6% of all deaths are ill-defined)
- Small team
  - limits depth and scope of analysis
  - time constraints
  - expertise in many different areas is hard to obtain
  - covering all areas is a struggle
  - ability to inform policy decisions and public health strategies is limited

european burden-eu of disease network



SLOVENIA COUNTRY PROFILE

1st European Workshop on Burden of Disease

Brussels, Belgium, 18/09/2025

Tina Lesnik

Scope and status

- Started 2020 as part of PhD project
- Focus:
  - IDDs (2010-2021), adapted GBD IDD list,
  - Probabilistic IDD redistribution approach (Devleesschauwer at al.)
  - All-cause YLL (2014-2019)
  - YLD and DALY for diabetes (2014-2019) using SD and DW of GBD
- National and regional coverage
- Independent assessment

Recent developments

- 4 papers in preparation:
  - Characteristics & trends of IDD (STSM at RKI)
  - Redistribution of IDD (STSM at Sciensano)
  - All-cause YLL 2014–2019 (STSM at Sciensano)
  - DALY of diabetes in active population

Knowledge translation

- Vision and draft plan
  - Publishing in scientific journals & professional outlets (Medical Chamber)
  - Collaboration with Slovenian cancer register

Challenges

- Mortality data quality (IDD list, multiple causes of death, redistribution)
- Diabetes – severity distribution, comorbidity!?
- Continuation and expansion of YLD calculations
- Building a Slovenian BoD team and strengthening capacity

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PORTUGAL COUNTRY PROFILE

1st European Workshop on Burden of Disease

Brussels, Belgium, 18/09/2025

Mariana O. Corda

NOVA NATIONAL SCHOOL OF PUBLIC HEALTH

EGAS MONIZ SCHOOL of HEALTH & SCIENCE

Scope and status



Don’t have a **National Burden of Disease** study

IHME

The only study more complete evaluating the burden of disease that we have available is the **GBD study**

FOCUS STUDY AREAS

- **Study area:** Portugal (national level)
- **Year:** 1990 to 2021
- **Mortality** (YLL)
- **Morbidity** (YLD)
- **Disability-Adjusted Life Years** (DALYs)
- Risk factors

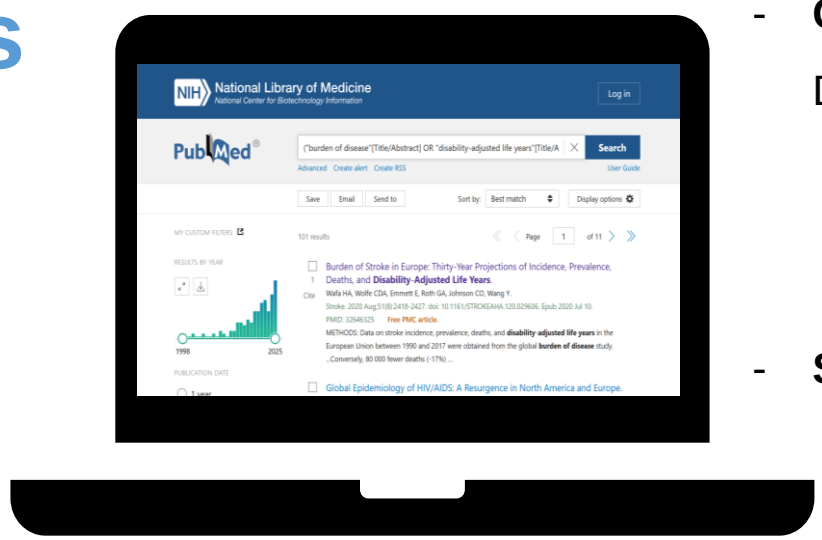
Scope and status



How much are burden of disease methodologies used in studies in Portugal?

101 results

- **Mortality** (YLL)
- **Morbidity** (YLD)
- **Disability-Adjusted Life Years** (DALYs)
- Risk factors



NATIONAL ENTITIES

- **General Directorate of Health** (from Portuguese Direção Geral da Saúde (DGS))
  - Integrates metrics such as YLDs, YLL and DALYs into **annual health reports** and at the **national health plan**
  - To define priorities and assess the impact of risk factors
- **Statistics Portugal (INE)**
  - Mainly responsible for mortality statistics and causes of death.

Recent developments

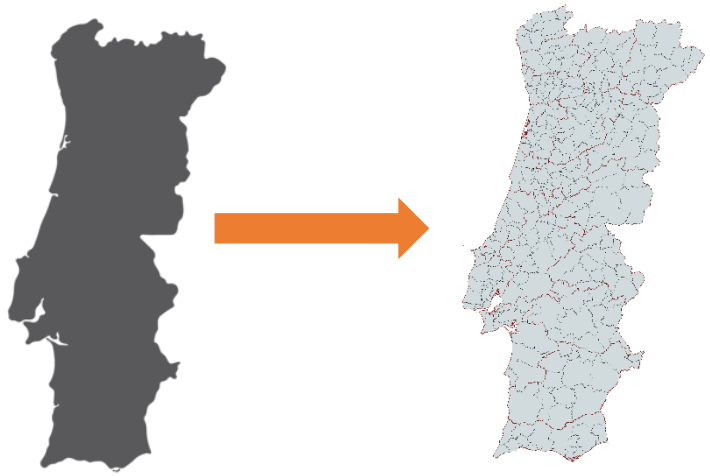
WP5

Attributable burden of disease – air pollutants and noise **+ cost (WP2) + social inequalities (WP3)**

1/5 CASE COUNTRIES STUDY

1. Estimating the **total disease burden** for the health outcomes included in the study → producing **new and more recent evidence** of the health disease burden for Portugal (2010 – 2024)

2. Estimating the burden of disease to **subnational level → municipality**



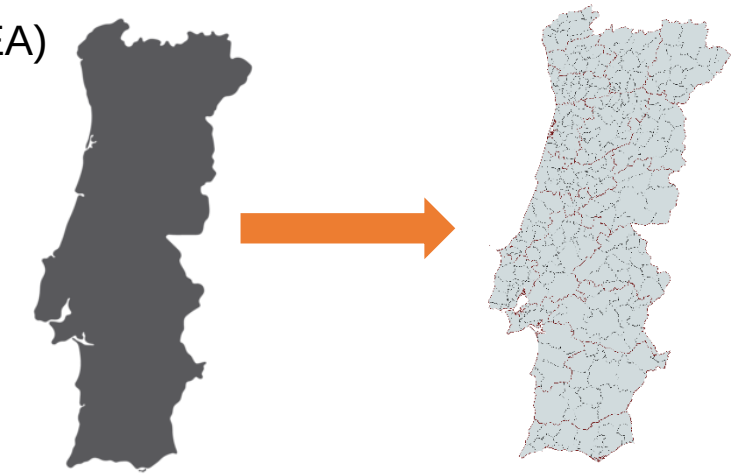
Recent developments

1. Estimating the **total disease burden** for the health outcomes included in the study → producing **new and more recent evidence** of the health disease burden for Portugal (2010 – 2024)

2. Estimating the burden of disease to **subnational level → municipality**

3. Estimating the **attributable burden of disease** to the most important environmental risk factor to human health (air pollution) and noise using robust data to air pollution and noise (EEA)

4. Monitisation the health impact and estimating the social inequalities

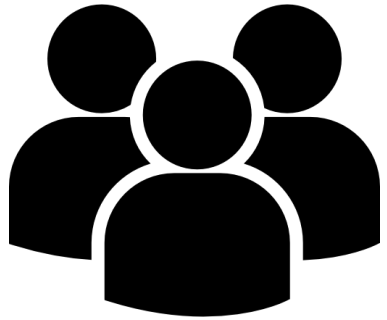


Knowledge translation

Are disease burden methodologies easy to interpret…

By **policymakers**?

IMPORTANT for the problem definition and prioritisation of interventions



- Involve stakeholders with an impact on policy decisions in methodological choices
- Complement the disease burden estimations with other methodologies

→ health impact assessment or cost of inaction (**€€€**)

By **population**?

Challenges

CHALLENGE I – Data limitation

- **Mortality data** – full available for national level to municipality level (access to data at parish level requires a request for authorisation)
- **Morbidity data** – there is no database with prevalence data and freely available data with huge aggregation in terms of outcome, sex and age-group. **The alternative** → hospital mortality database (Diagnosis-related group – DRG) **HOWEVER** limited access, request for access to data, which is **often denied.**

CHALLENGE II – Specific methodological hurdles

- Morbidity data → hospital morbidity database (Diagnosis-related group – DRG) → **hospital admissions** → **INCIDENCE** but for the burden of disease estimation of non-communicable diseases we often apply a prevelence-based approach
    - Calculation of YLDs with incidence data? → **UNDERESTIMATED IMPACT?**

european burden-eu of disease network

NORWAY COUNTRY PROFILE

1st European Workshop on Burden of Disease

Brussels, Belgium, 18/09/2025

Carl Baravelli, PhD

Scope and status

- Norwegian Institute of Public Health (NIPH)
  - Core task: knowledge, preparedeness, infras
  - Administers all health registries & several lar
- Disease Burden at NIPH
  - 2013: The Norwegian Burden of Disease Proj
  - 2015: The Centre for Disease Burden
  - 2021: The Department for Disease Burden
  - 2023: GBD Collaborating Unit at NIPH
- Main aims with Centre for Disease Burden
  - Provide the complete description of the Norwegian health situation
  - Estimate and compare how morbidity and mortality can be attributed to different causes, injuries and risk factors, by age, sex, and over time, nationally and subnationally
  - Main activities: 1) BoD analyses (GBD, and linked registry-based for social inequalities/small areas) 2) forecasting analyse 3) mortality surveillance

There is a need for complete health statistics in Norway, that can be compared internationally, regionally and over time

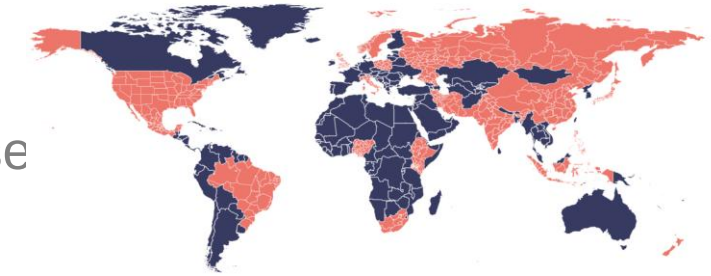






Stein Emil Vollset

Ann Kristin Knudsen



FHI

SENTER FOR SYKDOMSBYRDE

- The Norwegian point of contact with IHME and GBD
- Close collaboration with international researchers and institutions interested in BoD analyses


Ann Kristin Knudsen
centre director


Jonas Minet Kinge
senior researcher


Ingeborg Forthun
researcher


Christian Madsen
senior researcher


Carl Baravelli
researcher


Catherine Schwinger
senior advisor


Stein Emil Vollset
Head of Unit, professor


Ernst Kristian Rødland
senior researcher


Gunn Marit Aasvang
senior researcher


Anette Bølling
senior researcher


Helle Kathrine Knutsen
researcher


Astri Syse
senior researcher


Konstantinos Giannakis
researcher


(Viktor) Minh-Nhat Pham
Post.doc.


Ingrid Rønning-Heyerdahl
PhD Candidate


Liliana Vazquez Fernandez
researcher


Liv Cecilie Vestrheim Thomsen
Dept. director

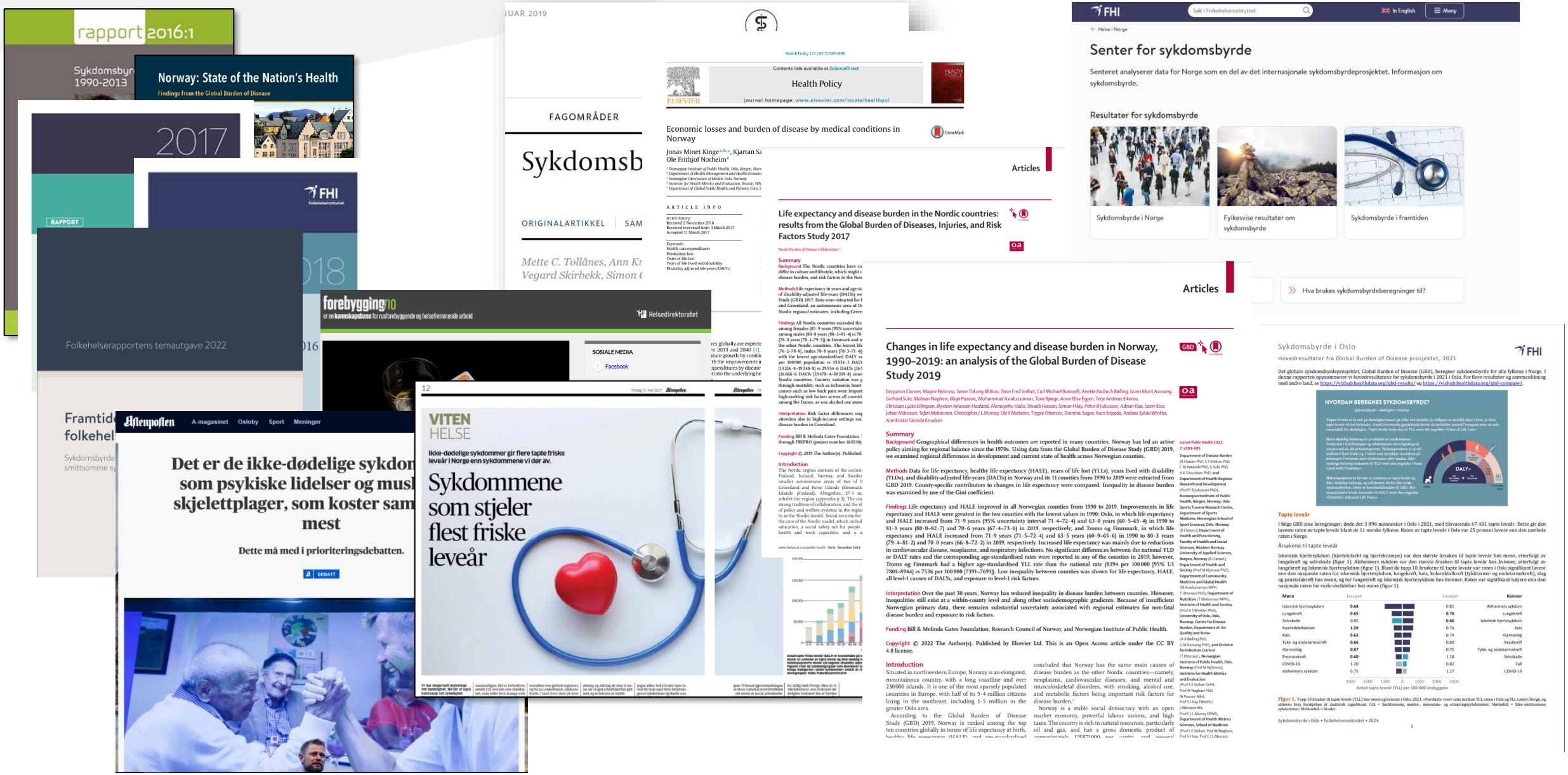

Kari Anne Sveen
Senior researcher


Umut Altay
researcher

Recent developments

- The Centre of Disease Burden is leading a new assignment from the Ministry of Health on prevention related to the four major modifiable risk factors (alcohol, tobacco, diet, and physical activity).
- A national report describing GBD-based estimates of attributable disease burden is under preparation to support the upcoming Public Health Plan later this year.
- Additionally, we are working with IHME's clinical informatics team with access to our linked registry data to help improve GBD estimates.

Knowledge translation



Challenges

- Perceptions of GBD:
  - Politicians value the comparability and overview GBD provides.
  - Scientists are often sceptical, viewing it as a “black box” and questioning why registry data isn’t sufficient.
- Producing national estimates:
  - Generating our own estimates (e.g. by social disparities or small-area analyses) is crucial, but highly resource- and time-intensive.

european burden-eu of disease network

GERMANY
COUNTRY PROFILE

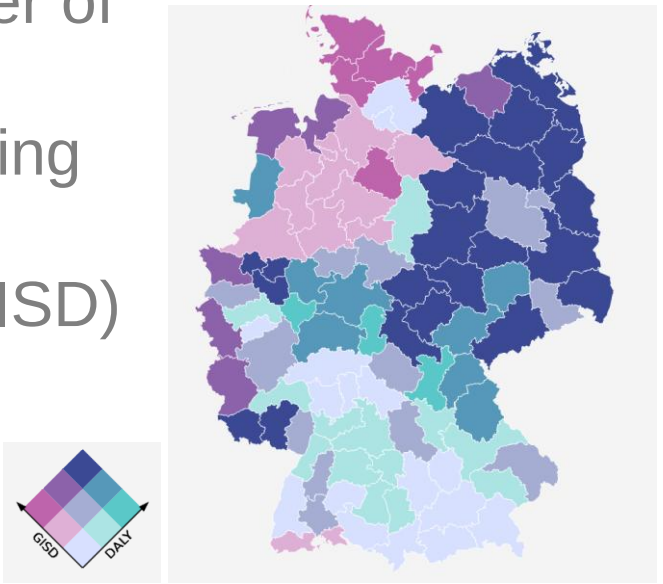
1st European Workshop on Burden of Disease

Brussels, Belgium, 18/09/2025

BURDEN of DISEASE

Scope and status

- BURDEN2020 Pilot Study (2018 – 2021)
- National assessments, project coordinated from RKI with two partners: UBA and AOK
- YLL (mortality envelope); YLD and DALY for a selected number of diseases, reference year: 2017
- Regional stratification: 16 Federal states and 96 Spatial planning regions
- Results linked wth the German Index of Social Deprivation (GISD)



YLD per 100 000 population Diabetes mellitus

Recent developments

- Time trends: Results are updated for the period 2015 – 2021
- Six new diseases included
- Methodological improvements
  - Uncertainty estimations
  - Multimorbidity/comorbidity adjustment
  - Small area estimation for survey data

Knowledge translation

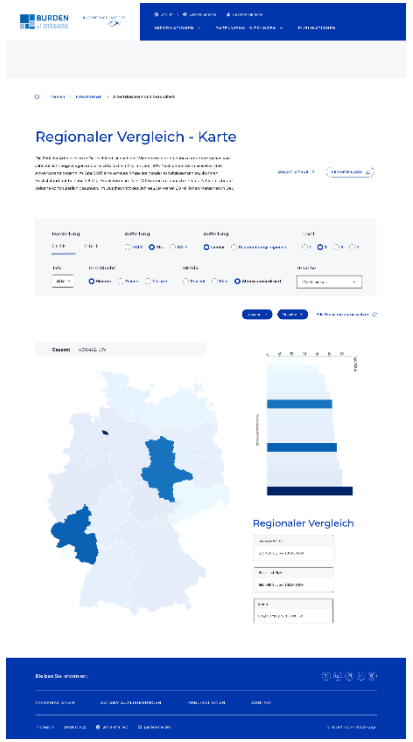
- Stakeholder engagement: Stakeholder list; participative online workshop (pilot phase).
- Accessible results: via website and visualisations (age, sex, region).
- Ongoing updates: Transition to new website with extended features (visualisations, summary, web-report, highlights).
- Outreach: Supported by social media activities and active communication with Ministry of Health to secure regular funding, publications and conference presentations.
- Capacity building: Regular requests for new data and improvement; implementation of methods; extension to additional causes and risk factors.
- Collaboration: Cooperation with universities and research institutes.









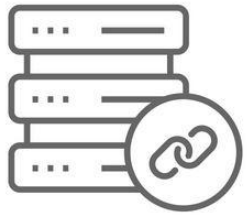


Challenges

- Sustainable structures and capacity constraints
  - Securing long-term funding, esp. permanent staff positions remains a core challenge.
  - Limited personnel available for expanding methods, analyses, and dissemination.



- Data access & limitations
  - Heavy reliance on routine health insurance data with restricted access.
  - Health insurance bias, complicated methods for corrections
  - Future health data research centers: limited output options and access restrictions.
  - Regional level data: limited access because of data protection regulations



- Methodological hurdles/data protection
  - Mandatory approval of outputs by data research centers, leading to unpredictable approval timelines.
  - Imputational methods -> blocked cells on regional data
  - Complex calculations for uncertainty bands requiring high-performance computing.

ZAVOD ZA JAVNO ZDRAVSTVO FBiH
INSTITUTE FOR PUBLIC HEALTH FB&H

Institute for Public Health Federation of Bosnia and Herzegovina

Ass. Prof. Siniša Skočibušić, MD, PhD, Director

Overview of the Institute's Activities Related to Burden of Disease Calculations in the Federation of BiH

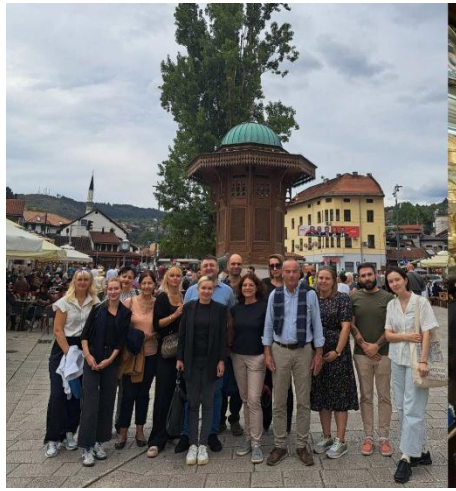
- **2021-2022**: The Institute launched activities within the **BoCo-19 Project**, focused on burden of disease calculations and the impact of the pandemic.
- **2021-2022**: participation in COST Actions CA18218 focused on methodologies and practices in burden of disease estimation.
- **2023-2025**: The Institute participates in the **WASP Project**, led by the **Robert Koch Institute**, with partner institutions from the Western Balkan countries.

In continuation, the activities carried out are related to burden of disease calculations in the Federation of BiH.

In September 2024, within the framework of the WASP Project, a meeting was held at the Public Health Institute of the Federation of Bosnia and Herzegovina, with the participation of the Robert Koch Institute, the Statens Serum Institute, and partner institutions from the Western Balkan countries









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INSTITUTE FOR PUBLIC HEALTH FB&H

BoCo-19 Project activities

COST Action CA18218
European Burden of Disease Network

International Burden of Disease Conference

Golden Tulip Zira Belgrade, Belgrade, Serbia
15-16 September 2022

ZAVOD ZA JAVNO ZDRAVSTVO FBiH
INSTITUTE FOR PUBLIC HEALTH FB&H

Years of life lost to COVID-19 in the Federation of Bosnia and Herzegovina during 2020-2021

Šeila Cilović Lagarija[1], Siniša Skočibušić[1]

[1] *Institute for public health Federations of Bosnia and Herzegovina, Sarajevo, Federations of Bosnia and Herzegovina*

Background

The full health impact of the COVID-19 pandemic is critical for evaluating the potential policy responses. We have analyzed the impact of COVID-19 on premature mortality by calculating the Years of Life Lost (YLL) in the Federation of Bosnia and Herzegovina in 2020-2021.

Methods

YLLs are calculated by subtracting the age at death from the longest possible life expectancy for a person at that age. For calculation YYL used the number of COVID-19 deaths, obtained from the Institute for Statistics of the Federation of Bosnia and Herzegovina, multiplied by the life expectancy from Global Burden of Disease (GBD 2019), this allows comparisons by age groups as well as with other countries, and population size used to calculate YLL per 100 000.

Results

During the year 2020 39,511 years of life was lost by men, whereas women lost 19,910 years of life, and a total of 59,420 YLL, 2,720 YLL per 100 000 (total rate). In the year 2021 men lost 72,503 years of life, women lost 54,582 years of life, which is a total of 127,085 YLL, 5,860 YLL per 100 000 (total rate).In comparison with other results from studies in 81 countries, a total of 20,507,518 years of life have been lost to COVID-19, due to 1,279,866 deaths from the disease.

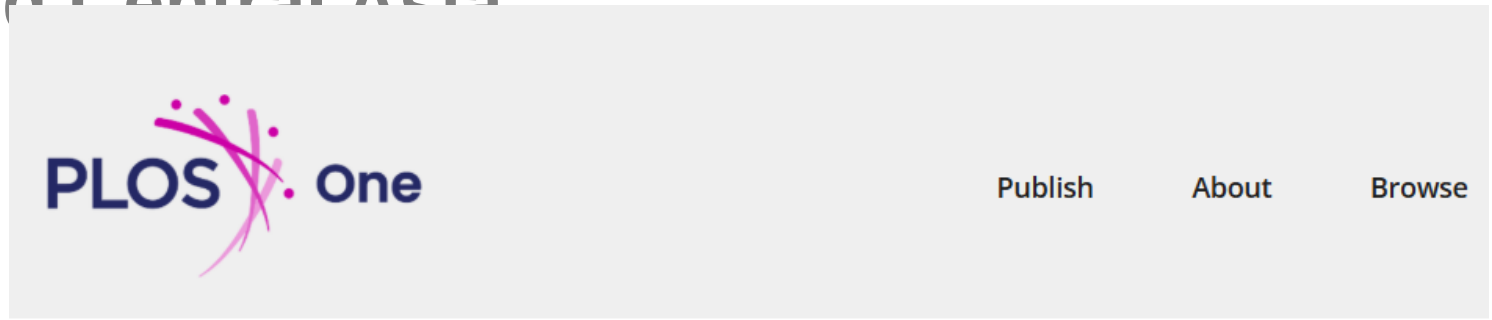
Conclusion

Conclusion: From a public health standpoint, years of life lost is crucial as it assesses how much life has been cut short for populations that have been affected by the disease. YLL is very closely associated with COVID-19 deaths in the country, and during the pandemic period, men lost 1.5 more YLL in comparison to women in the Federations of BiH.

Key messages

- During the pandemic period men lost 1.5 more YLL in comparison to women in the Federations of BiH

BoCO-19 Study Group. The Burden of Disease due to COVID-19 (BoCO-19): A study protocol for a secondary analysis of surveillance data in Southern and Eastern Europe, and Central Asia



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Activitis with Cost Ation CA18218 Europen Burden of Disease Network, RKI and Institute of Public Health FBiH

COST Action CA18218
European Burden of Disease Network

EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

BoCO-19

ZAVOD ZA JAVNO ZDRAVSTVO FBiH
INSTITUTE FOR PUBLIC HEALTH FB&H



4th Working Group Meeting

Tallinn, Estonia,
14–15 September 2023

Disability-adjusted life years (DALYs) due to COVID-19 in Federation of Bosnia and Herzegovina, 2020

Šeila Cilović-Lagarija[1], Siniša Skočibušić[1,2], Caoimhe Cawley[3], Elena Von der Lippe[3], Alexander Rommel[3]

[1] Institute for Public Health of the Federation of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina
[2] Faculty of Medicine, University of Mostar, Mostar, Bosnia and Herzegovina
[3] Robert Koch Institute, Berlin, Germany

Background

During the COVID-19 pandemic in Federation of Bosnia and Herzegovina (FB&H) in 2020, 72,188 cases of COVID-19 and a total of 2,339 deaths were recorded. Our aim was to estimate disability-adjusted life years (DALYs) due to COVID-19 in FB&H, during 2020. DALYs combine the impact of morbidity and mortality and can enable comparable assessments of health harms due to COVID-19 in our country.

Methods

We calculated DALYs based on the Burden-EU consensus model, including YLL, acute YLD and preliminary estimations for YLD due to Long COVID, based on approaches suggested by the Global Burden of Disease (GBD) Long COVID Collaborators. For YLL, we used the GBD 2019 reference life expectancy table. For acute YLD, the severity distribution was based on German data. For YLD due to Long COVID, we used an adapted version of the Long COVID Collaborators approach and results are still preliminary.

Results

During the year 2020, 39,511 years of life was lost by men, whereas women lost 19,910 years of life; the total YLL lost by men and women was 59,420. Estimates for total YLD by men was 407,9, whereas for women YLD 533,1 (estimates for Long COVID are preliminary), during the year 2020 initial. Our preliminary estimate DALY for the year 2020 in FB&H is therefore 60,361.

Conclusion

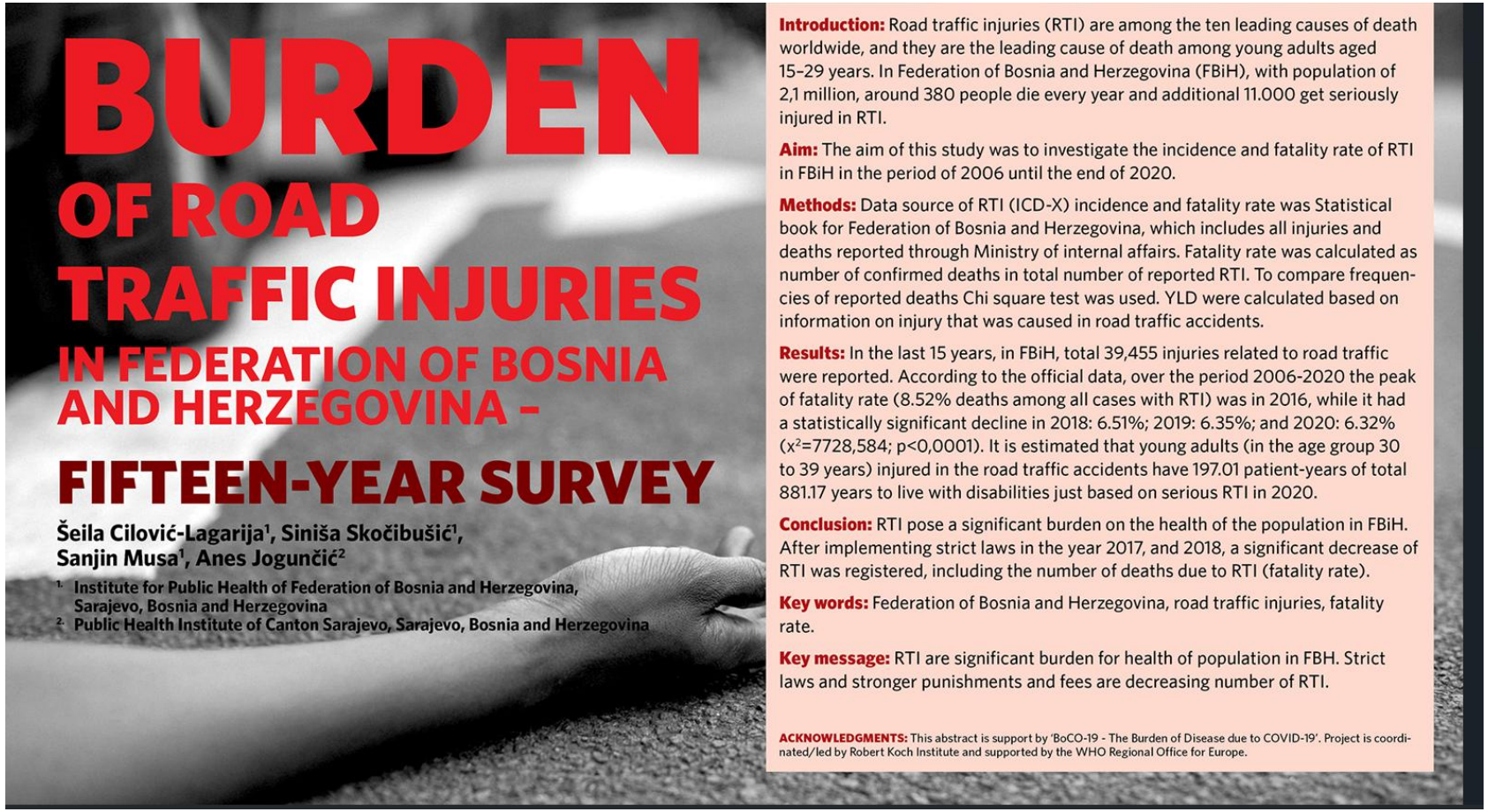
Essential health care has been interrupted because of measures during the first year of pandemic COVID-19 in FB&H. During 2020, men lost 1.5 more YLL in comparison to women in the Federations of BiH, and the Long COVID-19 results are preliminary. DALY for FB&H is similar value to many countries.

Key messages

- Preliminary estimate DALY for the year 2020 in Federation of Bosnia and Herzegovina is therefore 60,361.
- During 2020, men lost 1.5 more YLL in comparison to women in Federation of Bosnia and Herzegovina.

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INSTITUTE FOR PUBLIC HEALTH FB&H

Presented on EUPHA Berlin 2022



BURDEN OF ROAD TRAFFIC INJURIES IN FEDERATION OF BOSNIA AND HERZEGOVINA – FIFTEEN-YEAR SURVEY

Šeila Cilović-Lagarija[1], Siniša Skočibušić[1], Sanjin Musa[1], Anes Jogunčić[2]

1. Institute for Public Health of Federation of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina
2. Public Health Institute of Canton Sarajevo, Sarajevo, Bosnia and Herzegovina

Introduction: Road traffic injuries (RTI) are among the ten leading causes of death worldwide, and they are the leading cause of death among young adults aged 15–29 years. In Federation of Bosnia and Herzegovina (FBiH), with population of 2,1 million, around 380 people die every year and additional 11.000 get seriously injured in RTI.

Aim: The aim of this study was to investigate the incidence and fatality rate of RTI in FBiH in the period of 2006 until the end of 2020.

Methods: Data source of RTI (ICD-X) incidence and fatality rate was Statistical book for Federation of Bosnia and Herzegovina, which includes all injuries and deaths reported through Ministry of internal affairs. Fatality rate was calculated as number of confirmed deaths in total number of reported RTI. To compare frequencies of reported deaths Chi square test was used. YLD were calculated based on information on injury that was caused in road traffic accidents.

Results: In the last 15 years, in FBiH, total 39,455 injuries related to road traffic were reported. According to the official data, over the period 2006-2020 the peak of fatality rate (8.52% deaths among all cases with RTI) was in 2016, while it had a statistically significant decline in 2018: 6.51%; 2019: 6.35%; and 2020: 6.32% (x^2=7728,584; p<0,0001). It is estimated that young adults (in the age group 30 to 39 years) injured in the road traffic accidents have 197.01 patient-years of total 881.17 years to live with disabilities just based on serious RTI in 2020.

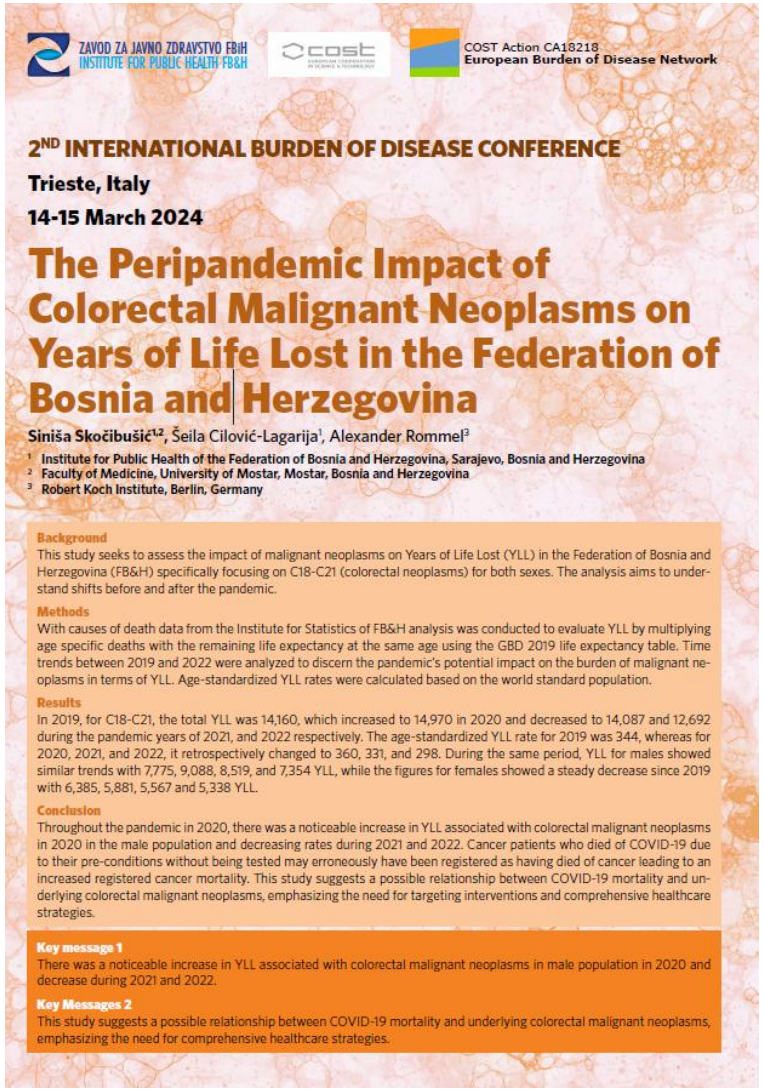
Conclusion: RTI pose a significant burden on the health of the population in FBiH. After implementing strict laws in the year 2017, and 2018, a significant decrease of RTI was registered, including the number of deaths due to RTI (fatality rate).

Key words: Federation of Bosnia and Herzegovina, road traffic injuries, fatality rate.

Key message: RTI are significant burden for health of population in FBH. Strict laws and stronger punishments and fees are decreasing number of RTI.

ACKNOWLEDGMENTS: This abstract is support by 'BoCO-19 - The Burden of Disease due to COVID-19'. Project is coordinated/led by Robert Koch Institute and supported by the WHO Regional Office for Europe.

Activities through the WASP Project and COST Action: 2nd International Burden of Disease Conference, 2024



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INSTITUTE FOR PUBLIC HEALTH FB&H

COST Action CA18218
European Burden of Disease Network

2ND INTERNATIONAL BURDEN OF DISEASE CONFERENCE

Trieste, Italy

14-15 March 2024

The Peripandemic Impact of Colorectal Malignant Neoplasms on Years of Life Lost in the Federation of Bosnia and Herzegovina

Siniša Skočibušić[1,2], Šeila Cilović-Lagarija[1], Alexander Rommel[3]

[1] Institute for Public Health of the Federation of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina
[2] Faculty of Medicine, University of Mostar, Mostar, Bosnia and Herzegovina
[3] Robert Koch Institute, Berlin, Germany

Background
This study seeks to assess the impact of malignant neoplasms on Years of Life Lost (YLL) in the Federation of Bosnia and Herzegovina (FB&H) specifically focusing on C18-C21 (colorectal neoplasms) for both sexes. The analysis aims to understand shifts before and after the pandemic.

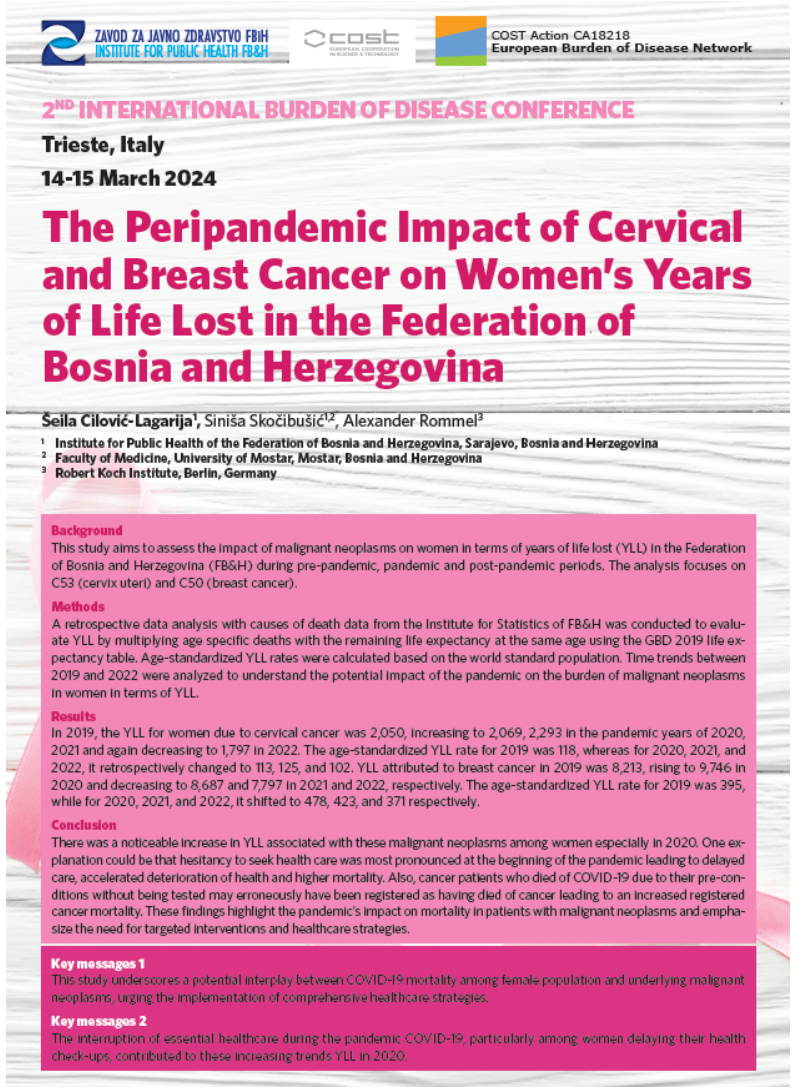
Methods
With causes of death data from the Institute for Statistics of FB&H analysis was conducted to evaluate YLL by multiplying age specific deaths with the remaining life expectancy at the same age using the GBD 2019 life expectancy table. Time trends between 2019 and 2022 were analyzed to discern the pandemic's potential impact on the burden of malignant neoplasms in terms of YLL. Age-standardized YLL rates were calculated based on the world standard population.

Results
In 2019, for C18-C21, the total YLL was 14,160, which increased to 14,970 in 2020 and decreased to 14,087 and 12,692 during the pandemic years of 2021, and 2022 respectively. The age-standardized YLL rate for 2019 was 344, whereas for 2020, 2021, and 2022, it retrospectively changed to 360, 331, and 298. During the same period, YLL for males showed similar trends with 7,775, 9,088, 8,519, and 7,354 YLL, while the figures for females showed a steady decrease since 2019 with 6,385, 5,881, 5,567 and 5,338 YLL.

Conclusion
Throughout the pandemic in 2020, there was a noticeable increase in YLL associated with colorectal malignant neoplasms in 2020 in the male population and decreasing rates during 2021 and 2022. Cancer patients who died of COVID-19 due to their pre-conditions without being tested may erroneously have been registered as having died of cancer leading to an increased registered cancer mortality. This study suggests a possible relationship between COVID-19 mortality and underlying colorectal malignant neoplasms, emphasizing the need for targeting interventions and comprehensive healthcare strategies.

Key message 1
There was a noticeable increase in YLL associated with colorectal malignant neoplasms in male population in 2020 and decrease during 2021 and 2022.

Key Messages 2
This study suggests a possible relationship between COVID-19 mortality and underlying colorectal malignant neoplasms, emphasizing the need for comprehensive healthcare strategies.



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INSTITUTE FOR PUBLIC HEALTH FB&H

COST Action CA18218
European Burden of Disease Network

2ND INTERNATIONAL BURDEN OF DISEASE CONFERENCE

Trieste, Italy

14-15 March 2024

The Peripandemic Impact of Cervical and Breast Cancer on Women's Years of Life Lost in the Federation of Bosnia and Herzegovina

Šeila Cilović-Lagarija[1], Siniša Skočibušić[1,2], Alexander Rommel[3]

[1] Institute for Public Health of the Federation of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina
[2] Faculty of Medicine, University of Mostar, Mostar, Bosnia and Herzegovina
[3] Robert Koch Institute, Berlin, Germany

Background
This study aims to assess the impact of malignant neoplasms on women in terms of years of life lost (YLL) in the Federation of Bosnia and Herzegovina (FB&H) during pre-pandemic, pandemic and post-pandemic periods. The analysis focuses on C53 (cervix uteri) and C50 (breast cancer).

Methods
A retrospective data analysis with causes of death data from the Institute for Statistics of FB&H was conducted to evaluate YLL by multiplying age specific deaths with the remaining life expectancy at the same age using the GBD 2019 life expectancy table. Age-standardized YLL rates were calculated based on the world standard population. Time trends between 2019 and 2022 were analyzed to understand the potential impact of the pandemic on the burden of malignant neoplasms in women in terms of YLL.

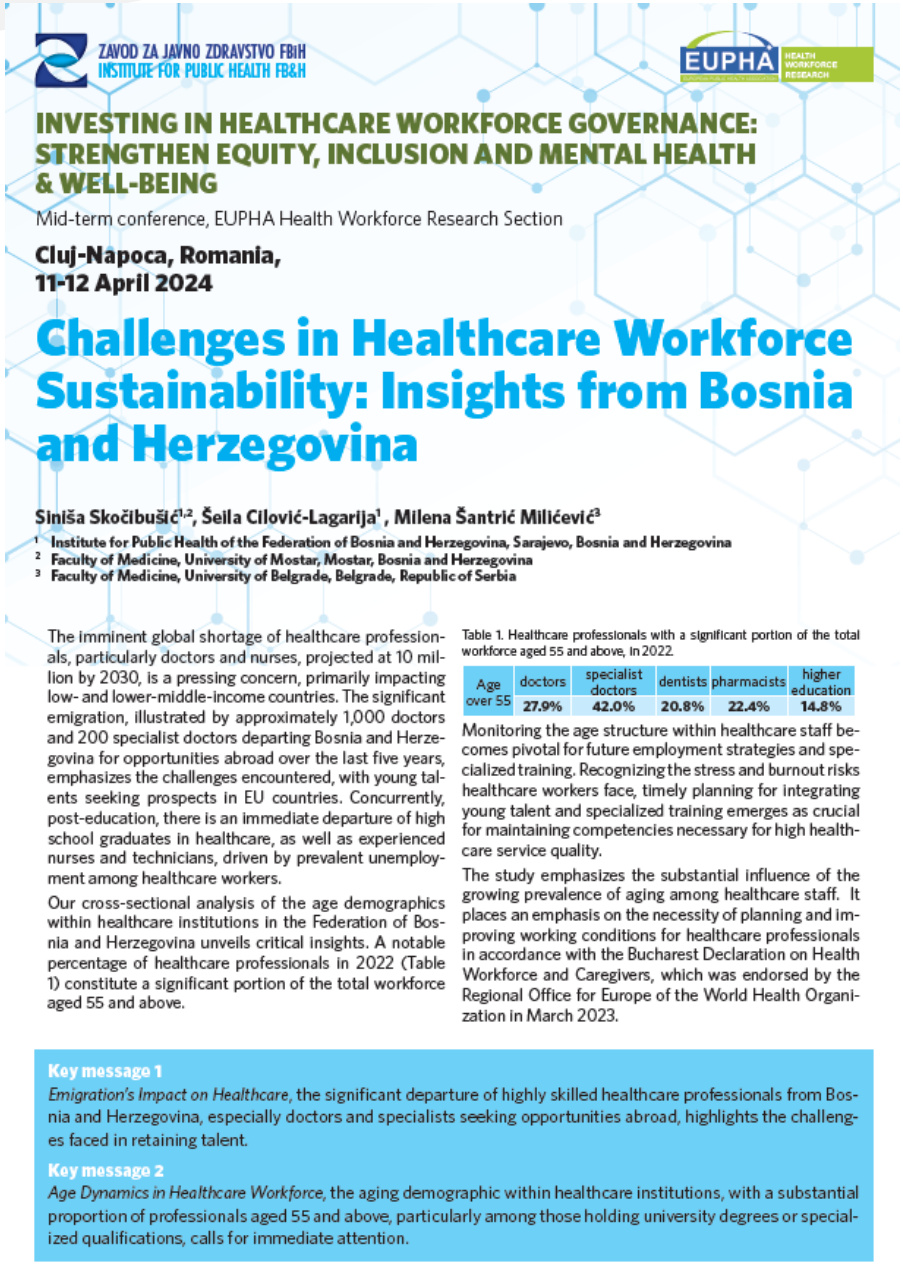
Results
In 2019, the YLL for women due to cervical cancer was 2,050, increasing to 2,069, 2,293 in the pandemic years of 2020, 2021 and again decreasing to 1,797 in 2022. The age-standardized YLL rate for 2019 was 118, whereas for 2020, 2021, and 2022, it retrospectively changed to 113, 125, and 102. YLL attributed to breast cancer in 2019 was 8,213, rising to 9,746 in 2020 and decreasing to 8,687 and 7,797 in 2021 and 2022, respectively. The age-standardized YLL rate for 2019 was 395, while for 2020, 2021, and 2022, it shifted to 478, 423, and 371 respectively.

Conclusion
There was a noticeable increase in YLL associated with these malignant neoplasms among women especially in 2020. One explanation could be that hesitancy to seek health care was most pronounced at the beginning of the pandemic leading to delayed care, accelerated deterioration of health and higher mortality. Also, cancer patients who died of COVID-19 due to their pre-conditions without being tested may erroneously have been registered as having died of cancer leading to an increased registered cancer mortality. These findings highlight the pandemic's impact on mortality in patients with malignant neoplasms and emphasize the need for targeted interventions and healthcare strategies.

Key messages 1
This study underscores a potential interplay between COVID-19 mortality among female population and underlying malignant neoplasms, urging the implementation of comprehensive healthcare strategies.

Key messages 2
The interruption of essential healthcare during the pandemic COVID-19, particularly among women delaying their health check-ups, contributed to these increasing trends YLL in 2020.

Activities through the WASP Project: Healthcare Workforce, Mid-term Conference, EUPHA Health Workforce Research Section



ZAVOD ZA JAVNO ZDRAVSTVO FBiH
INSTITUTE FOR PUBLIC HEALTH FB&H

EUPHA HEALTH WORKFORCE RESEARCH

INVESTING IN HEALTHCARE WORKFORCE GOVERNANCE: STRENGTHEN EQUITY, INCLUSION AND MENTAL HEALTH & WELL-BEING

Mid-term conference, EUPHA Health Workforce Research Section

Cluj-Napoca, Romania,
11-12 April 2024

Challenges in Healthcare Workforce Sustainability: Insights from Bosnia and Herzegovina

Siniša Skočibušić[1,2], Šeila Cilović-Lagarija[1], Milena Šantrić Milićević[3]

[1] Institute for Public Health of the Federation of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina
[2] Faculty of Medicine, University of Mostar, Mostar, Bosnia and Herzegovina
[3] Faculty of Medicine, University of Belgrade, Belgrade, Republic of Serbia

The imminent global shortage of healthcare professionals, particularly doctors and nurses, projected at 10 million by 2030, is a pressing concern, primarily impacting low- and lower-middle-income countries. The significant emigration, illustrated by approximately 1,000 doctors and 200 specialist doctors departing Bosnia and Herzegovina for opportunities abroad over the last five years, emphasizes the challenges encountered, with young talents seeking prospects in EU countries. Concurrently, post-education, there is an immediate departure of high school graduates in healthcare, as well as experienced nurses and technicians, driven by prevalent unemployment among healthcare workers.

Our cross-sectional analysis of the age demographics within healthcare institutions in the Federation of Bosnia and Herzegovina unveils critical insights. A notable percentage of healthcare professionals in 2022 (Table 1) constitute a significant portion of the total workforce aged 55 and above.

Table 1. Healthcare professionals with a significant portion of the total workforce aged 55 and above, in 2022.

Age over 55	doctors	specialist doctors	dentists	pharmacists	higher education
	27.9%	42.0%	20.8%	22.4%	14.8%

Monitoring the age structure within healthcare staff becomes pivotal for future employment strategies and specialized training. Recognizing the stress and burnout risks healthcare workers face, timely planning for integrating young talent and specialized training emerges as crucial for maintaining competencies necessary for high healthcare service quality.

The study emphasizes the substantial influence of the growing prevalence of aging among healthcare staff. It places an emphasis on the necessity of planning and improving working conditions for healthcare professionals in accordance with the Bucharest Declaration on Health Workforce and Caregivers, which was endorsed by the Regional Office for Europe of the World Health Organization in March 2023.

Key message 1
Emigration's Impact on Healthcare, the significant departure of highly skilled healthcare professionals from Bosnia and Herzegovina, especially doctors and specialists seeking opportunities abroad, highlights the challenges faced in retaining talent.

Key message 2
Age Dynamics in Healthcare Workforce, the aging demographic within healthcare institutions, with a substantial proportion of professionals aged 55 and above, particularly among those holding university degrees or specialized qualifications, calls for immediate attention.

Activities through the WASP Project, EUPHA 2024

IMPACT
OF NONCOMMUNICABLE DISEASES ON YEARS OF LIFE LOST IN FB&H DURING THE COVID-19 PANDEMIC

17th European Public Health Conference 2024
Sailing the waves of European public health: exploring a sea of innovation

13 - 15 November 2024
Lisbon, Portugal

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Background: This study aims to comprehensively investigate the impact of noncommunicable diseases (NCDs) on years of life lost (YLL) within the Federation of Bosnia and Herzegovina (FB&H) across distinct phases: pre-pandemic, pandemic, and post-pandemic periods. Given that NCDs currently represent more than half of the global disease burden, our focus lies in assessing YLL specifically for cerebral infarction (I63-I64) and diabetes mellitus (E10-E14).

Methods: Conducting a retrospective data analysis, we utilized mortality data sourced from the Institute for Statistics of FB&H to quantify YLL. This assessment involved multiplying age-specific mortality figures by the remaining life expectancy at the corresponding age, utilizing the GBD 2019 life expectancy table. Examining the period between 2019 and 2022, our analysis aimed to elucidate the pandemic's potential influence on NCD burden, through the examination of age-standardized YLL rates based on the world standard population.

Results: In 2019, YLL attributable to I63-I64 for both sexes totaled 41,244 in 2019, escalating to 44,790 in 2020, and subsequently decreasing to 39,439 and 32,055 in the pandemic years of 2021 and 2022, respectively. For diabetes mellitus (E10-E14), YLL in 2019 amounted to 23,675, with figures for 2020, 2021, and 2022 standing retrospectively at 24,329, 24,114, 19,125. Regarding age-standardized YLL rates for I63-I64 in 2019 were 822 and 882, 760, 613 in 2020, 2021, 2022 respectively. Age standardized YLL for E10-E14 were 505 in 2019 and 497, 485, 381 in 2020, 2021, 2022 respectively.

Conclusion: The increase in 2020 may be attributed, in part, to initial healthcare hesitancy during the pandemic's onset, leading to delayed treatment and heightened mortality rates. Furthermore, patients who died in 2020 from C-19 without being tested may have skewed mortality registration by inflating rates attributed to pre-existing conditions. The declining rates thereafter could be due to a harvesting pandemic effect, in that people who were previously ill died prematurely from C-19. These insights show the pandemic's profound impact on NCD-related mortality, underscoring the urgent need for targeted interventions and healthcare strategies.

Key Messages:
- A substantial reduction in years of life lost (YLL) related to certain noncommunicable diseases was observed during the pandemic.
- The pandemic significantly influenced mortality among individuals with noncommunicable diseases, driven partly by healthcare hesitancy and potential misregistration of causes of death.

Table 1. Impact of Noncommunicable Diseases on Years of Life Lost in FB&H

	2019	2020	2021	2022
Total YLL I63-I66	41,244	44,790	39,439	32,055
Rate YLL I63-I66	822	882	760	613
Total YLL E10-E14	23,675	24,329	24,114	19,125
Rate YLL E10-E14	505	497	485	381

Graph 1. Noncommunicable Diseases and Years of Life Lost in FB&H: Total I63-I66

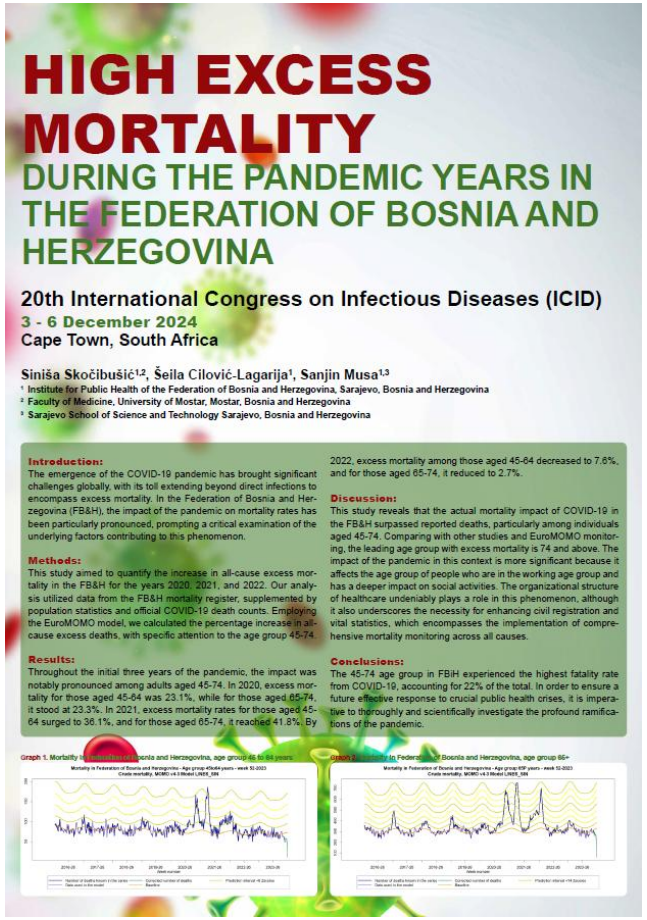


Graph 2. Noncommunicable Diseases and Years of Life Lost in FB&H: Total E10-E14



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Activities on Excess Mortality in the Federation BiH through the WHO Project and the WASP Project



HIGH EXCESS MORTALITY

DURING THE PANDEMIC YEARS IN THE FEDERATION OF BOSNIA AND HERZEGOVINA

20th International Congress on Infectious Diseases (ICID)
3 - 6 December 2024
Cape Town, South Africa

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Introduction:
The emergence of the COVID-19 pandemic has brought significant challenges globally, with its toll extending beyond direct infections to encompass excess mortality. In the Federation of Bosnia and Herzegovina (FB&H), the impact of the pandemic on mortality rates has been particularly pronounced, prompting a critical examination of the underlying factors contributing to this phenomenon.

Methods:
This study aimed to quantify the increase in all-cause excess mortality in the FB&H for the years 2020, 2021, and 2022. Our analysis utilized data from the FB&H mortality register, supplemented by population statistics and official COVID-19 death counts. Employing the EuroMOMO model, we calculated the percentage increase in all-cause excess deaths, with specific attention to the age group 45-74.

Results:
Throughout the initial three years of the pandemic, the impact was notably pronounced among adults aged 45-74. In 2020, excess mortality for those aged 45-64 was 23.1%, while for those aged 65-74, it stood at 23.3%. In 2021, excess mortality rates for those aged 45-64 surged to 36.1%, and for those aged 65-74, it reached 41.8%. By 2022, excess mortality among those aged 45-64 decreased to 7.6%, and for those aged 65-74, it reduced to 2.7%.

Discussion:
This study reveals that the actual mortality impact of COVID-19 in the FB&H surpassed reported deaths, particularly among individuals aged 45-74. Comparing with other studies and EuroMOMO monitoring, the leading age group with excess mortality is 74 and above. The impact of the pandemic in this context is more significant because it affects the age group of people who are in the working age group and has a deeper impact on social activities. The organizational structure of healthcare undeniably plays a role in this phenomenon, although it also underscores the necessity for enhancing civil registration and vital statistics, which encompasses the implementation of comprehensive mortality monitoring across all causes.

Conclusions:
The 45-74 age group in FBiH experienced the highest fatality rate from COVID-19, accounting for 22% of the total. In order to ensure a future effective response to crucial public health crises, it is imperative to thoroughly and scientifically investigate the profound ramifications of the pandemic.



P-180

ENHANCING MORTALITY SURVEILLANCE:

INSIGHTS FROM EXCESS DEATHS ANALYSIS DURING THE COVID-19 PANDEMIC

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Introduction: The global repercussions of the COVID-19 pandemic extend beyond reported fatalities, imprinting a lasting effect on global health. The COVID-19 pandemic has presented substantial issues, encompassing not only direct infections but also excess mortality. The death rates in the Federation of Bosnia and Herzegovina (FB&H) have been significantly affected by the pandemic, leading to a need for a thorough analysis of the elements that contribute to this phenomena.

Objectives: This study aimed to quantify the increase in all-cause excess mortality in the FB&H for the years 2020, 2021, and 2022. Our analysis utilized data from the FB&H mortality register, supplemented by population statistics and official COVID-19 death counts, highlighting the frequently underreported deaths. We aimed to provide a comprehensive understanding of the true magnitude of the pandemic.

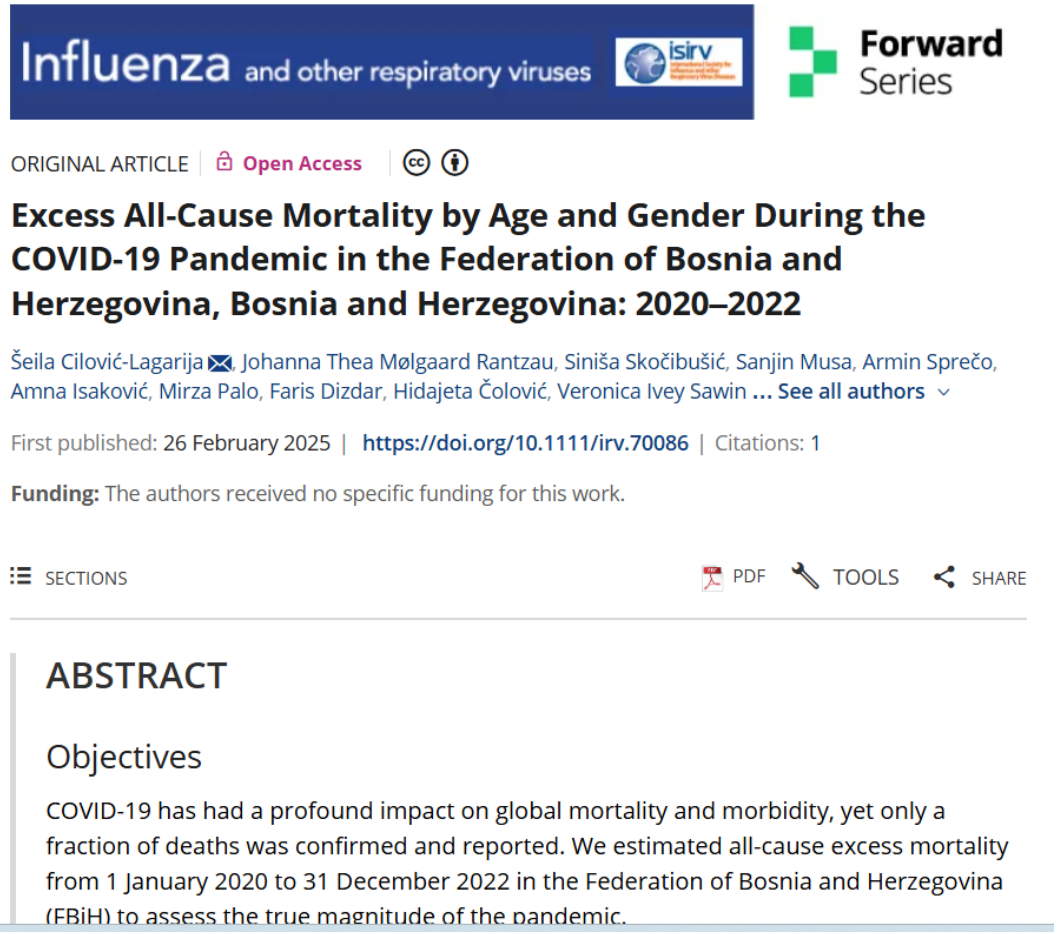
Methods: Using data from the FBiH mortality register, along with population statistics and official COVID-19 death counts, our analysis employed a Poisson model. We calculated the all-cause excess number of deaths for period 2020-2022 and presented results stratified by age for the same period.

Results: During the initial three years of the pandemic, FB&H encountered three separate instances of heightened mortality from any cause, accounting for 18% of the overall excess mortality during the period of 2020–2022. The biggest burden was recorded among adults aged 45–74, with 22.4% falling within the 45–64 age group, 22.1% within the 65–74 age group, and 19.4% within the 75–84 age group. Children under 15 years old did not exhibit any excess mortality.

Conclusions: This study reveals significant underreporting of COVID-19-related deaths in FBiH, particularly among younger adults. It underscores the urgent need to strengthen civil registration and vital statistics, advocating for the establishment of comprehensive all-cause mortality surveillance. These measures are crucial for enhancing the monitoring of future pandemics and responding effectively to other critical public health events. A meticulous review of the direct and indirect effects of COVID-19 on mortality is essential to identify areas requiring increased resources, improve healthcare provision, and inform strategic mitigation efforts for future challenges.

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Influenza and other respiratory viruses

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ORIGINAL ARTICLE | Open Access

Excess All-Cause Mortality by Age and Gender During the COVID-19 Pandemic in the Federation of Bosnia and Herzegovina, Bosnia and Herzegovina: 2020–2022

Šeila Cilović-Lagarija, Johanna Thea Mølgaard Rantzau, Siniša Skočibušić, Sanjin Musa, Armin Sprečo, Amna Isaković, Mirza Palo, Faris Dizdar, Hidajeta Čolović, Veronica Ivey Sawin ... See all authors

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ABSTRACT

Objectives

COVID-19 has had a profound impact on global mortality and morbidity, yet only a fraction of deaths was confirmed and reported. We estimated all-cause excess mortality from 1 January 2020 to 31 December 2022 in the Federation of Bosnia and Herzegovina (FBiH) to assess the true magnitude of the pandemic.

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Future plans

- Burden of Disease study in our country.
- We will continue calculating YLD, YLL, and DALY.
- We plan to disseminate our data and results through publications in journals and local outlets.
- Additionally, we aim to explore opportunities to jointly apply for EU-funded projects related to Burden of Disease.

Thank you for your attention!

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