

New international infrastructures for health inequality monitoring

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Summer School *proMIS*, Naples, July 1, 2026



“

“Medicine is social science, and politics nothing but medicine on a grand scale”

— Rudolf Virchow

CHAIN PILLARS

MONITORING



Building and
expanding
research
infrastructures

EXPLAINING



Mechanisms,
determinants,
and causal
pathways

REDUCING



Policy scenarios,
interventions, and
implementation

GEOGRAPHICAL COVERAGE

CHILDHOOD & LIFE COURSE

INTERSECTIONALITY



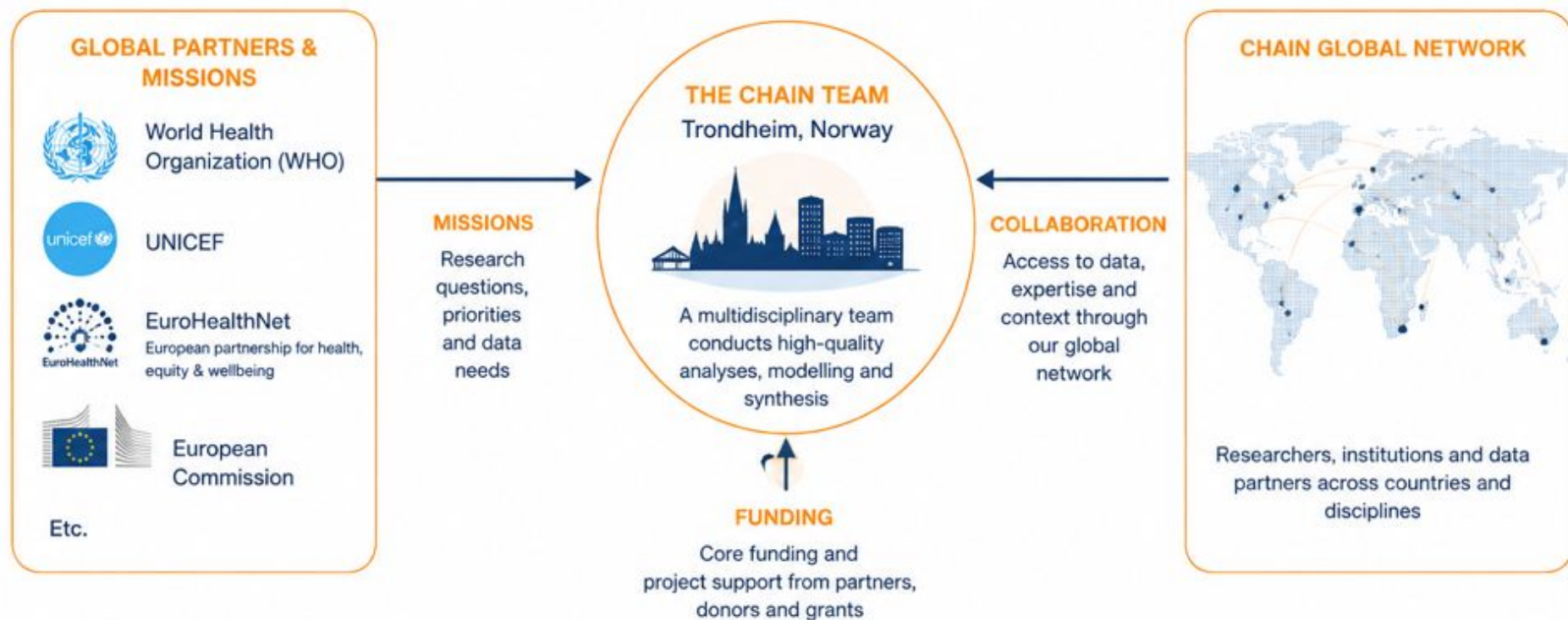
CO-CREATION • COMMUNICATION • DISSEMINATION

EuroHealthNet • WHO Health Inequality Monitoring Network • NGOs •
European Parliament • European Commission • National governments



How CHAIN works

Evidence for health equity – from global missions to impact



IMPACT



Policy advice

Actionable evidence for better decisions



Publications

High-quality research and open science



Visibility

Global recognition and influence



Capacity building

Strengthening partners and future leaders

The challenge



Battle between systems:
social sciences /
medical sciences



Medical disciplines have the power
to work as **change agents**, but
need the social sciences to
measure, understand, and
implement health equity.



The solution: social innovation

A

Implement
social science
into the
medical sphere

B

Implement
health perspectives
into existing social
science research
infrastructures

C

Start from
scratch with
a big idea



**Implement
social science
into the
medical sphere**

Global Burden of Disease (GBD)

The GBD study is the largest and most comprehensive effort to quantify health loss across places and over time, so health systems can be improved and disparities eliminated.

607 billion+

highly standardized and comprehensive estimates measure health outcomes and systems.

463

health outcomes and risk factors provide a powerful basis for insights on global health trends and challenges.

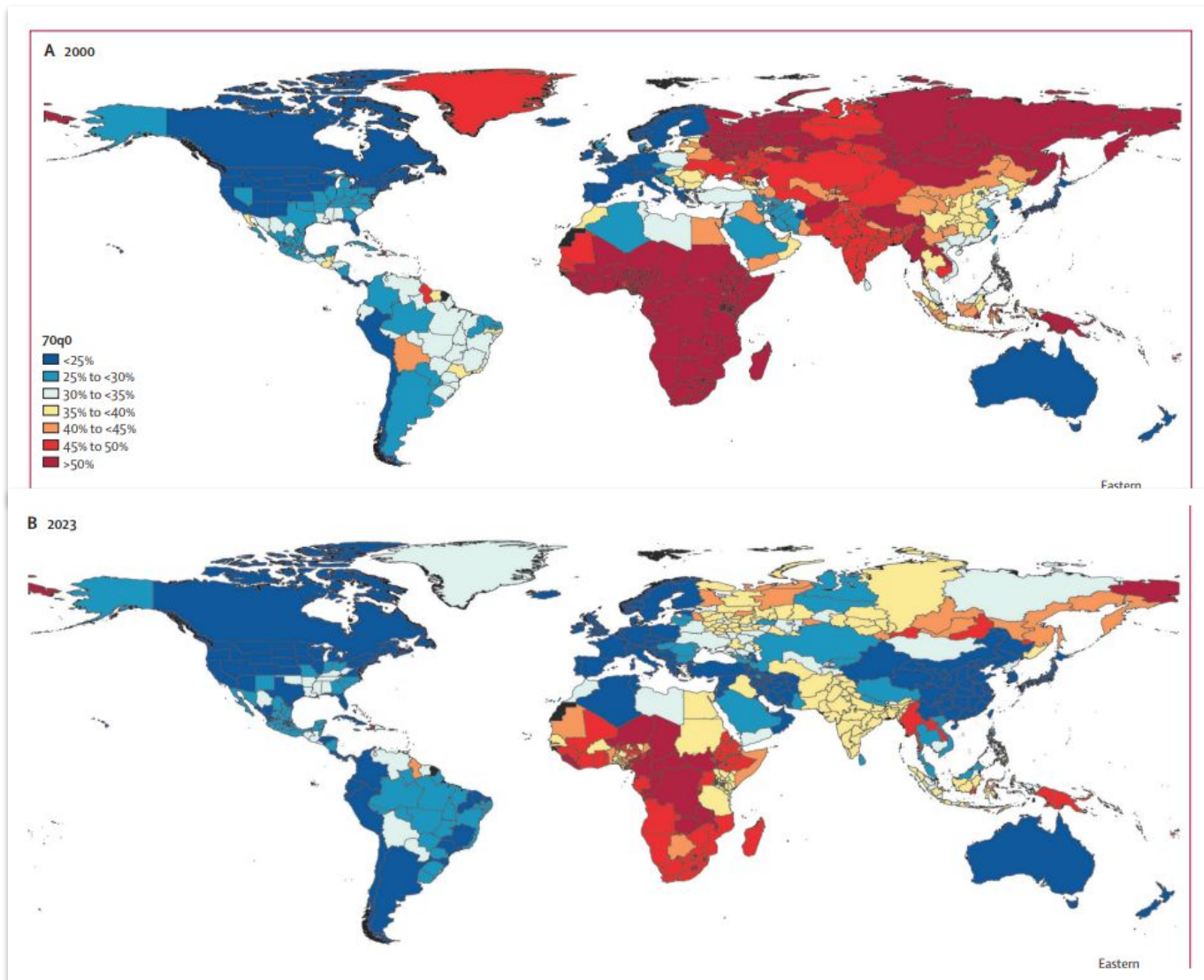
204

countries and territories, plus dozens of subnational locations show trends at regional, national, and local levels.

20,000+

individuals from 167 countries and territories collaborate in vetting GBD data sources and estimates.

Probability of death before age 70 years (from the GBD Study)



GBD 2023 Causes of Death Collaborators. (2025). *Global burden of 292 causes of death in 204 countries and territories and 660 subnational locations, 1990–2023: A systematic analysis for the Global Burden of Disease Study 2023.* **The Lancet**, **406**(10513), 1811–1872



IHME

GBD Compare

[Help](#) [Language](#) [Share](#) [Download](#) [Account](#)

The High SDI, ASEAN, and WHO region aggregates are currently unavailable. They will be reinstated in the tools in December.



Single

Explore

Compare



YLDs

DALYs

Deaths

Year

2021

Age

All

<5

5-14

15-49

50-69

70+

Sex

Male

Female

Both

Metric

#

Rate

%

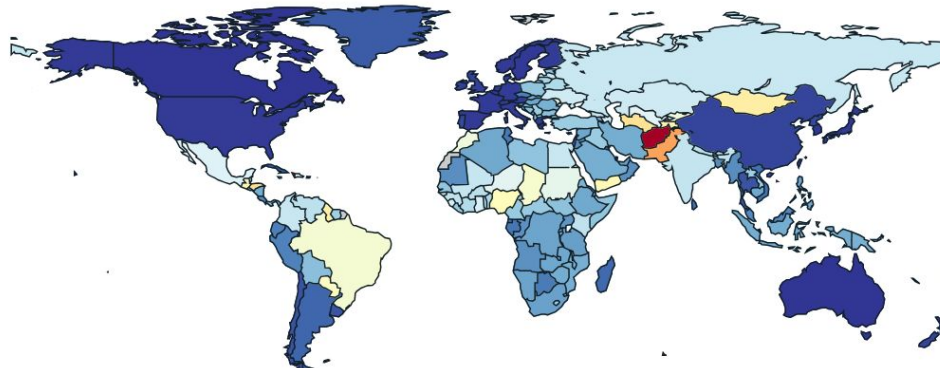
Rate of change



Detail



Hemolytic disease and other neonatal jaundice
Females, <5 years, 2021, YLDs per 100,000



Leading causes, 2019	Age-standardised mortality rate (per 100 000 population), 2019	Leading causes, 2021	Age-standardised mortality rate (per 100 000 population), 2021	Leading causes, 2023	Age-standardised mortality rate (per 100 000 population), 2023
1 Ischaemic heart disease	101.4 (93.0 to 108.2)	1 COVID-19	110.5 (105.9 to 113.9)	1 Ischaemic heart disease	99.8 (89.9 to 108.4)
2 Stroke	80.5 (73.9 to 87.1)	2 Ischaemic heart disease	102.9 (94.4 to 109.5)	2 Stroke	75.9 (67.8 to 83.5)
3 COPD	38.8 (33.6 to 46.2)	3 Stroke	79.6 (72.2 to 86.5)	3 COPD	38.4 (33.2 to 45.8)
4 Lower respiratory infections	34.2 (31.1 to 38.0)	4 COPD	34.5 (29.2 to 41.9)	4 Lower respiratory infections	31.6 (28.3 to 35.3)
5 Neonatal disorders	27.7 (26.1 to 29.1)	5 Lower respiratory infections	27.5 (24.4 to 31.3)	5 Neonatal disorders	26.7 (24.7 to 28.6)
6 Alzheimer's disease	25.3 (6.3 to 62.8)	6 Neonatal disorders	27.3 (25.6 to 28.9)	6 Alzheimer's disease	25.9 (6.4 to 62.7)
7 Lung cancer	21.9 (19.8 to 23.4)	7 Alzheimer's disease	25.6 (6.4 to 64.0)	7 Lung cancer	22.2 (20.2 to 24.1)
8 Diabetes	21.5 (18.8 to 24.2)	8 Diabetes	22.3 (19.4 to 25.3)	8 Diabetes	22.1 (18.7 to 25.5)
9 Diarrhoeal diseases	16.9 (13.4 to 22.6)	9 Lung cancer	22.2 (20.1 to 23.8)	9 Chronic kidney disease	17.2 (15.1 to 19.2)
10 Chronic kidney disease	16.6 (14.8 to 18.4)	10 Chronic kidney disease	17.0 (15.1 to 19.0)	10 Hypertensive heart disease	16.8 (13.4 to 20.7)
11 Hypertensive heart disease	16.5 (13.2 to 19.4)	11 Hypertensive heart disease	16.9 (13.6 to 20.2)	11 Road injuries	16.1 (12.5 to 19.0)
12 Road injuries	15.7 (12.5 to 18.0)	12 Road injuries	16.3 (12.7 to 18.9)	12 Cirrhosis liver	14.3 (12.7 to 16.0)
13 Cirrhosis	15.3 (13.7 to 17.0)	13 Diarrhoeal diseases	15.3 (11.9 to 20.6)	13 Diarrhoeal diseases	14.2 (10.6 to 19.2)
14 Tuberculosis	14.2 (11.8 to 17.7)	14 Cirrhosis	14.9 (13.2 to 16.7)	14 Colon and rectum cancer	12.3 (11.0 to 13.5)
15 Colon and rectum cancer	12.0 (11.0 to 13.1)	15 Tuberculosis	12.4 (10.4 to 15.3)	15 Tuberculosis	11.6 (9.2 to 14.4)
16 HIV/AIDS	11.3 (10.2 to 12.7)	16 Colon and rectum cancer	12.1 (11.1 to 13.2)	16 Stomach cancer	10.3 (8.8 to 11.9)
17 Stomach cancer	10.5 (9.1 to 12.0)	17 Stomach cancer	10.4 (9.1 to 11.9)	17 Falls	9.9 (8.3 to 11.6)
18 Falls	9.5 (8.1 to 11.0)	18 HIV/AIDS	10.3 (9.1 to 11.9)	18 HIV/AIDS	9.9 (8.6 to 11.3)
19 Self-harm	9.1 (8.1 to 10.2)	19 Malaria	10.0 (4.2 to 17.7)	19 Malaria	9.6 (3.7 to 17.9)
20 Malaria	9.0 (4.1 to 15.7)	20 Falls	9.9 (8.4 to 11.5)	20 COVID-19	9.3 (8.4 to 10.0)
30 Rheumatic heart disease	4.6 (3.2 to 6.3)	21 Self-harm	9.2 (8.1 to 10.3)		
57 Measles	1.8 (0.8 to 3.3)				

■ Communicable, maternal, neonatal, and nutritional diseases
■ Non-communicable diseases
■ Injuries

GBD 2023 Causes of Death Collaborators. (2025). *Global burden of 292 causes of death in 204 countries and territories and 660 subnational locations, 1990–2023: A systematic analysis for the Global Burden of Disease Study 2023.* **The Lancet**, 406(10513), 1811–1872

CHAIN-IHME collaboration: bringing education into the GBD



**Chris J.L. Murray and Emmanuela Gakidou bestowed as honorary doctors
NTNU, Trondheim, 2025**



Foto: Unicef



Children's chances of surviving their first five years increase for every year of education of their parents

Balaj M, et al. Parental education and inequalities in child mortality: a global systematic review and meta-analysis. Lancet 2021;398:608-20.

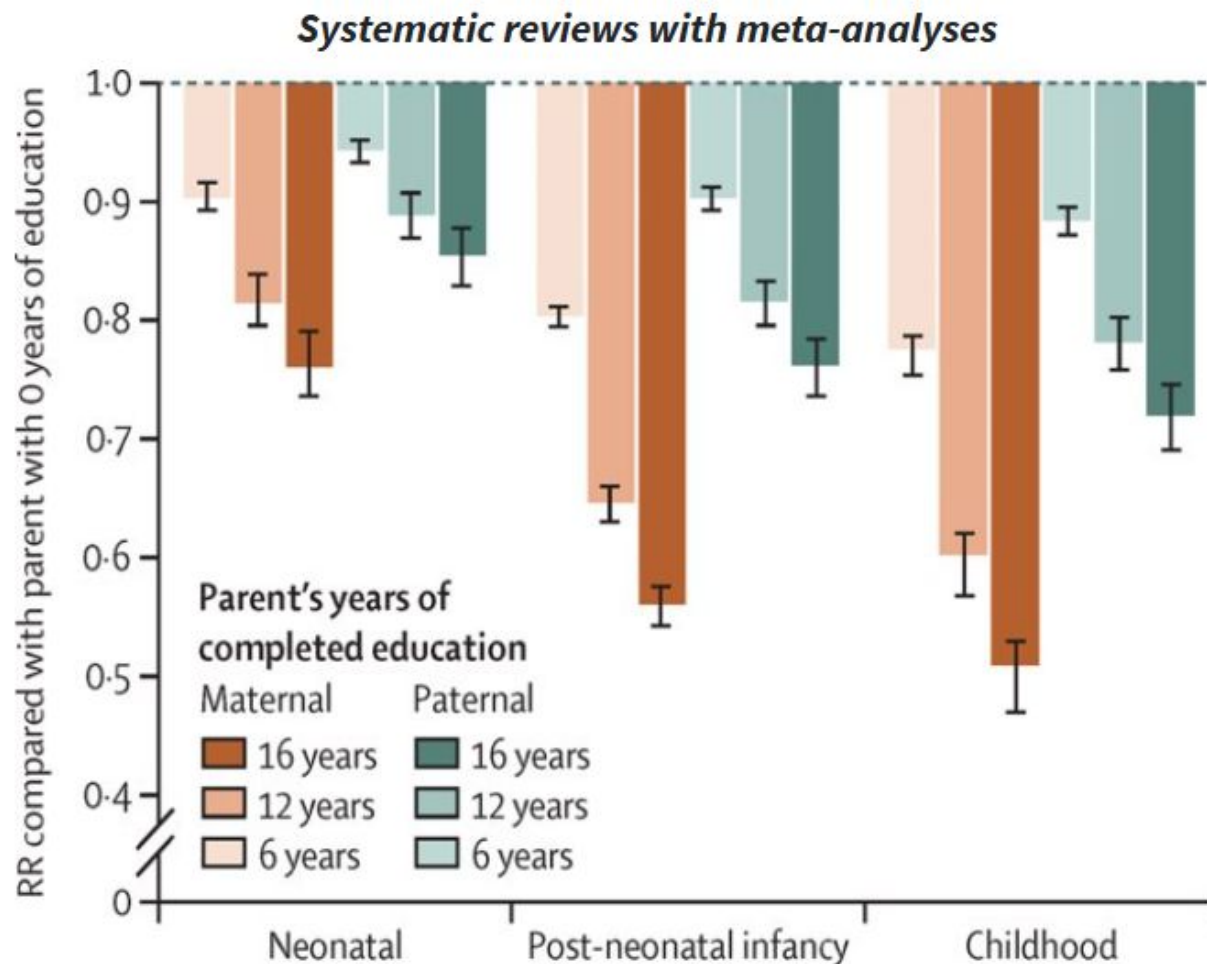


Articles

Parental education and inequalities in child mortality: a global systematic review and meta-analysis

Mirza Balaj PhD ^{a,*}, Hunter Wade York MPH ^{b, d,*}, Kam Sripada PhD ^{a,*}, Elodie Besnier MA ^a, Hanne Dahl Vonen ^a, Aleksandr Aravkin PhD ^{b, c, e}, Joseph Friedman MPH ^{b, f}, Max Griswold MA ^g, Magnus Rom Jensen MA ^h, Talal Mohammad MSc ^a, Erin C Mullany BA ^b, Solvor Solhaug MA ^h, Reed Sorensen MPH ^{b, e}, Donata Stonkute MSc ^a, Andreas Tallaksen cand.psych ⁱ, Joanna Whisnant MPH ^b, Peng Zheng PhD ^{b, e}, Prof Emmanuela Gakidou PhD ^{b, e, †}
✉, Prof Terje Andreas Eikemo PhD ^{a, †} ✉

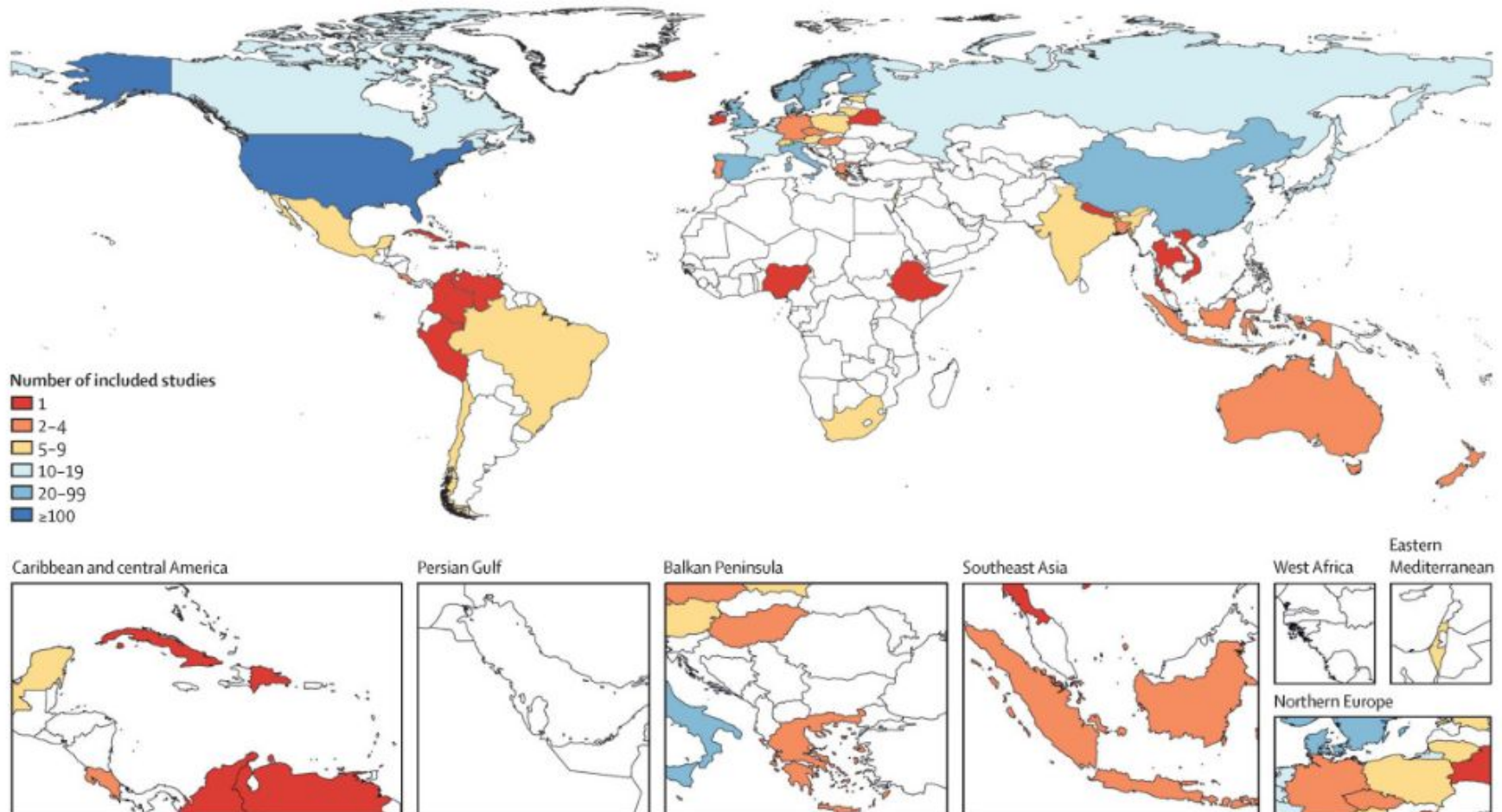
Show more 



- Reduction in under-5 mortality of 31% for children born to **mothers** with 12 years of education
- Reduction in under-5 mortality of 17.3% for children born to **fathers** with 12 years of education

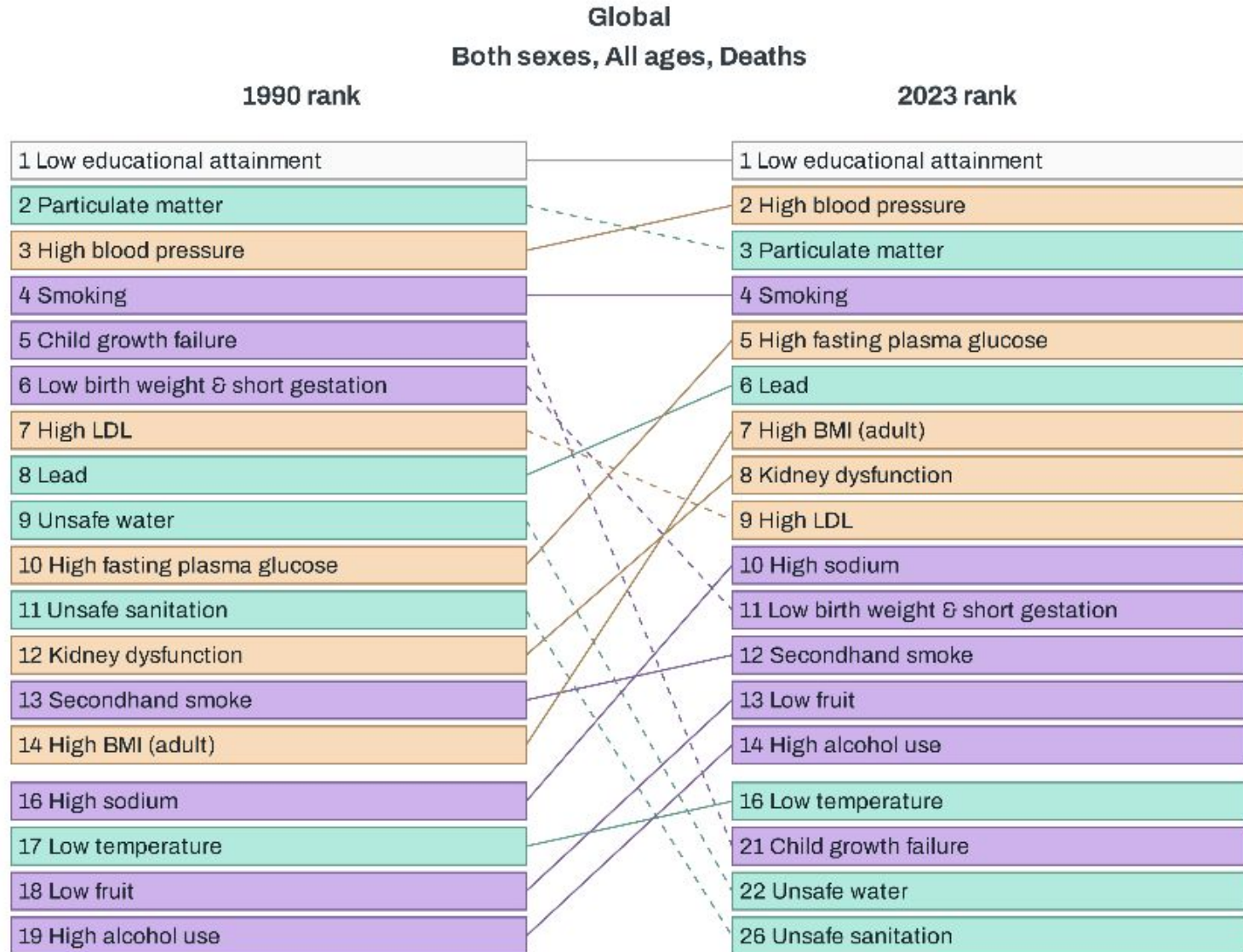
Balaj M, Henson CA, Aronsson A, Aravkin A, Beck K, Degail C, et al. Effects of education on adult mortality: a global systematic review and meta-analysis. **Lancet Public Health**. 2024;9(3):e155-e165.

Data coverage



Balaj M, Henson CA, Aronsson A, Aravkin A, Beck K, Degail C, et al. Effects of education on adult mortality: a global systematic review and meta-analysis. **Lancet Public Health**. 2024;9(3):e155-e165.

Preliminary (non published) analysis of education (GBD rank)





**Implement
health perspectives
into existing social
science research
infrastructures**

[news](#) » [Call for Round 12 rotating modules](#)

Call for Round 12 rotating modules

14/02/22



The European Social Survey (ESS) is inviting teams of researchers to propose a set of up to 30 questions to be included in Round 12 (2025) of the survey.

This open competition offers a unique chance to include a rotating module that focuses on a single academic area and/or policy concern within Europe.



Latest news



01/08/22

Electronic Questionnaire Device



21/07/22

Call for papers: Youth online event



23/06/22

Round 10 data now available



22/06/22

New report reflects on nine rounds of data

What is the ESS?



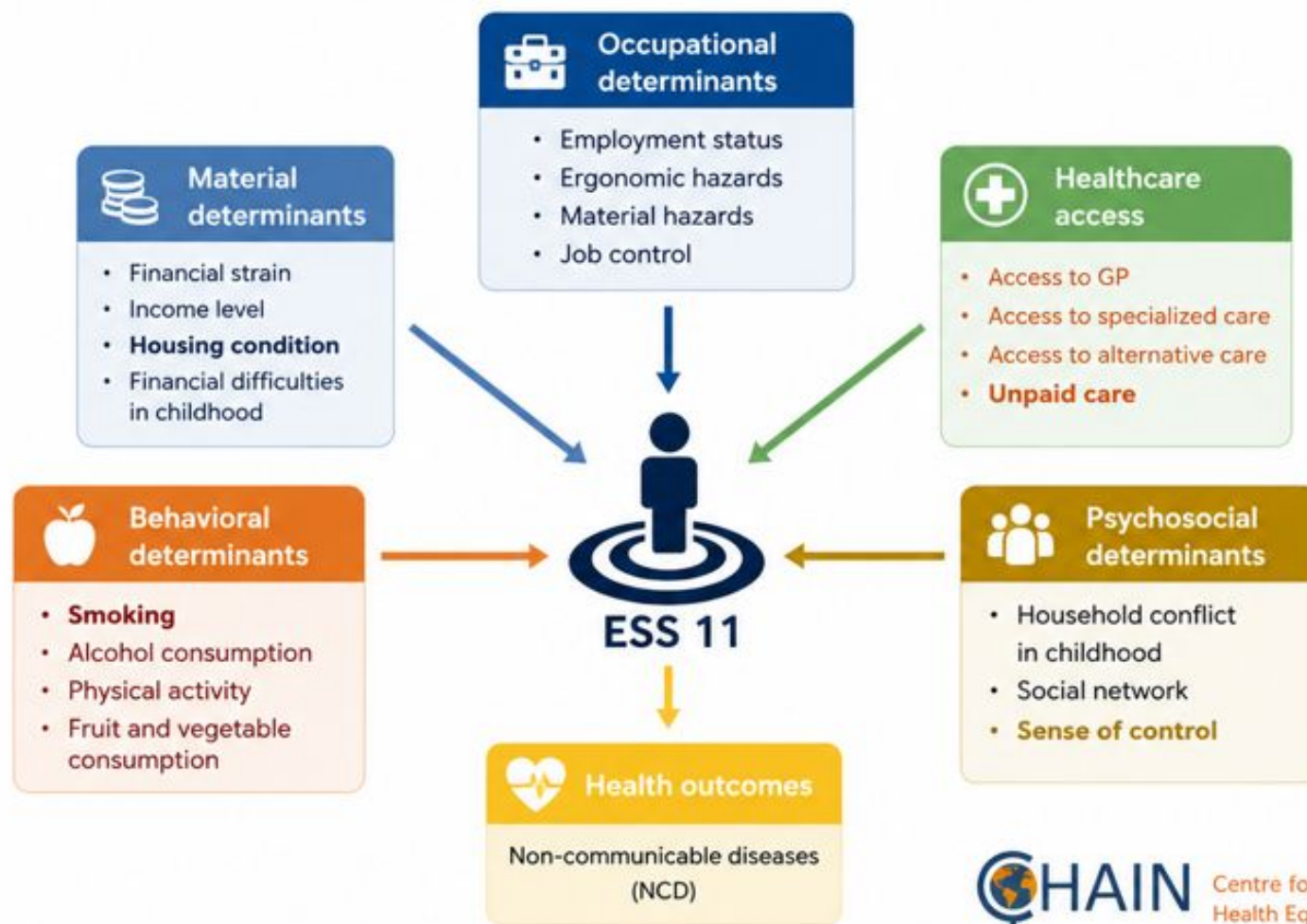
- **Terje Andreas Eikemo***
Leader, CHAIN
- **Mirza Balaj**
Research coordinator, CHAIN
- **Kristian Heggebø**
Post doctoral researcher, CHAIN
- **Tim Huijts***
University of Maastricht / Professor (20%), CHAIN
- **Clare Bambra***
Newcastle University

* Johan Mackenbach and Olle Lundberg were part of the design of ESS7.



CHAIN's health module in the European Social Survey (ESS):

Representative samples from age 15+



EuroHealthNet-CHAIN report

Social inequalities in health in the EU

Are countries closing the
health gap?



Read summary report



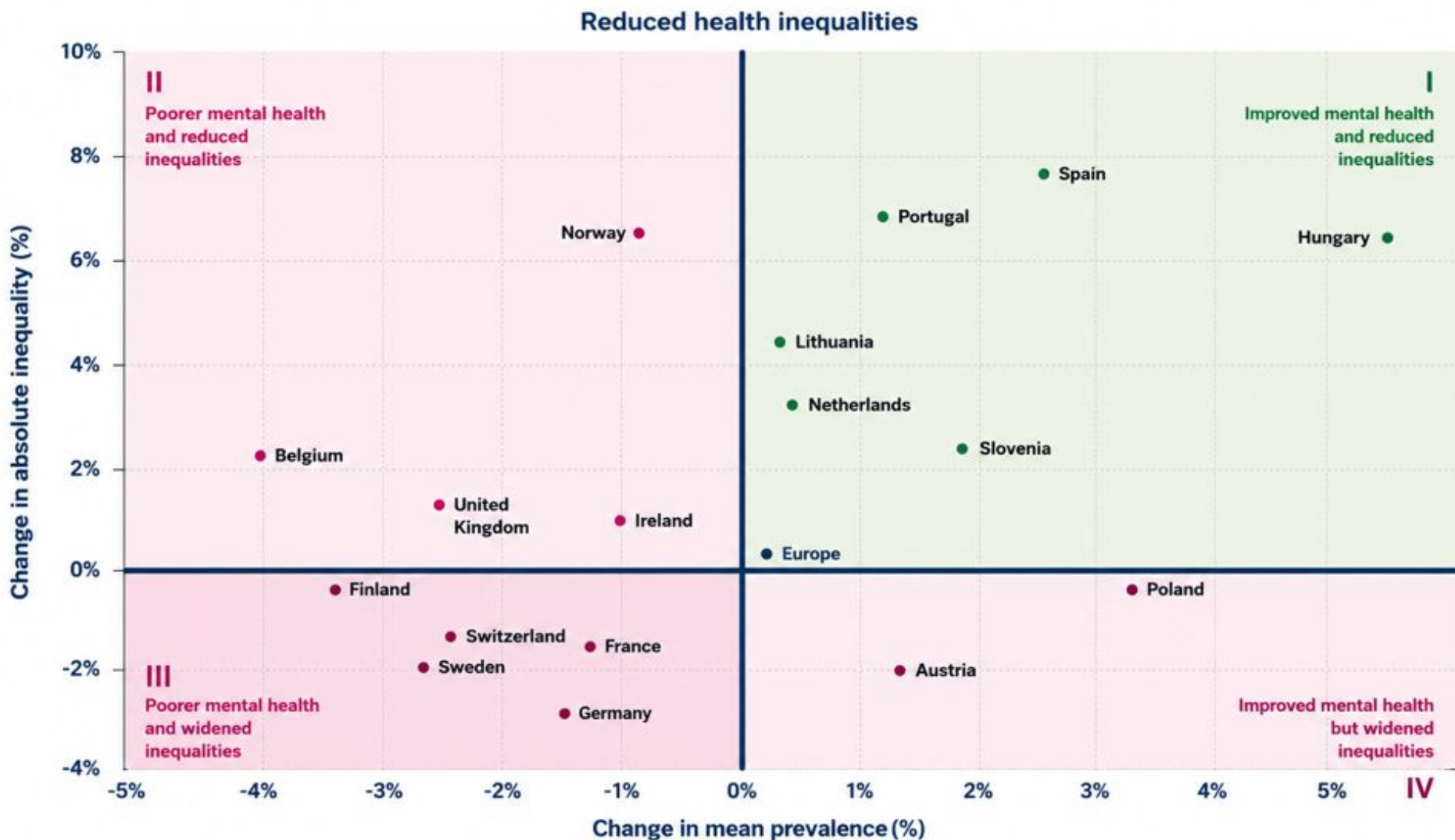
Read technical report





Social Inequalities in Health - High-Level Policy Debate Live Stream

Figure 21. Paths to equity or inequity in poor self-reported mental health, 25–75-year-olds, by occupation 2014–2024, based on absolute inequalities



Note: Based on absolute inequalities (SII) in poor self-reported mental health.

Source: European Social Survey (ESS) rounds 7–11 (2014–2024); own calculations.



Figure 39: Factors explaining poor mental health amongst 25–75-year-olds (2024)

Country focus: Italy



Italy: key results

Top factors associated with poor mental health among 25–75-year-olds in Italy (2024):

- Feeling of income
- House problems
- Conflict in childhood
- Sense of control

For Italy, economic and housing-related factors appear especially important, alongside psychosocial conditions and sense of control.

- | | | | |
|---|--|---|--|
| ■ Job control | ■ Feeling of income | ■ Sense of control | ■ Smoking |
| ■ Ergonomic hazards | ■ House problems | ■ Internet use | ■ Physical activity |
| ■ Material hazards | ■ Financial difficulties in childhood | ■ Conflict in childhood | ■ Fruits/vegetable consumption |
| ■ Employment status | ■ Social network | | |

The First Pan-European Sociological Health Inequalities Survey of the General Population: The European Social Survey Rotating Module on the Social Determinants of Health

Terje A. Eikemo^{1,*}, Clare Bambra², Tim Huijts³ and Rory Fitzgerald⁴

Social Science & Medicine 380 (2025) 118228



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journal homepage: www.elsevier.com/locate/socscimed



The second Health Inequalities Module in the European Social Survey (ESS): Methodology and research opportunities



Hanno Hoven^{a,b,*}, Terje Andreas Eikemo^b, Insa Backhaus-Hoven^b, Andrea Riebler^c, Rory Fitzgerald^d, Sara Martino^c, Tim Huijts^e, Kristian Heggebø^f, Pilar Vidaurre-Teixidó^b, Clare Bambra^g, Mirza Balaj^b

CROss-National Online Survey (CRONOS)

CRONOS (the CROss-National Online Survey) is the world's first cross-national probability-based input-harmonised web-first panel. Panellists are recruited from the mainstage European Social Survey (ESS), allowing CRONOS data to be linked to the panellists' ESS responses. [Read More >>](#)

CRONOS-3

CRONOS-3 collects data during 2024-26 in 11 countries, focusing on the NextGenEU themes – Digital, Equal, Green, Healthy, and Strong (waves 1-5) – and the green transition (waves 6-8).

[View CRONOS-3](#)

CRONOS-2

CRONOS-2 was fielded in 12 countries - Austria, Belgium, Czechia, Finland, France, Hungary, Iceland, Italy, Portugal, Slovenia, Sweden, and the United Kingdom - from November 2021 until March 2023.

[View CRONOS-2](#)

CRONOS-1

Building on previous experience of mixed-mode research, the ESS developed a CROss-National Online Survey (CRONOS-1) panel in 2016, fielded in Estonia, the UK, and Slovenia.

[View CRONOS-1](#)



**Start from
scratch with
a big idea**

Nordic and EU expert meeting i Brussel, 3 June 2025



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International
cooperation in
public health



Brief facts and



Digital media and its impact on children and adolescents – Nordic and EU expert meeting

“The Finnish and Swedish ministers emphasized the urgent need to address the health effects of digital media on children and adolescents”

“Concerns were raised about excessive screen time, its impact on mental health, and the need for collective action to safeguard the well-being of young people”

Scandinavian Journal of Public Health, 2019; 47: 593–597



EDITORIAL

Social Inequalities in health: Challenges, knowledge gaps, key debates and the need for new data

TERJE A. EIKEMO & EMIL ØVERSVEEN

Centre for Global Health Inequalities Research (CHAIN), Department of Sociology and Political Science, Norwegian University of Science and Technology (NTNU), Trondheim, Norway



The first European-wide
longitudinal study of children

Growing Up In Digital Europe (GUIDE)





GUIDE: Growing Up in Digital Europe

High quality comparative data on child wellbeing

- Harmonised instruments
- Longitudinal coverage

Europe's only longitudinal cohort survey of child wellbeing

- 28 partner countries
- National Nodes
- Central Hub

Accelerated cohort design

- Child cohort age 8 in 2027
- Infant cohort age 9 months in 2029

GUIDE was awarded ESFRI Roadmap status in 2021 (European Strategy Forum on Research Infrastructure)

GUIDEPREP funded by Horizon Europe (2002-2026)

This project has received funding from the European Union's Horizon Europe Research and Innovation programme under grant agreement No 101078945

GUIDE methodology

Questionnaire content is policy focused

Input harmonized for comparative analysis

- Common questionnaires
- Common data collection procedures and time frame

Children and young people involved in the design

Accelerated cohort design

- Cohort 1: 8-year-old children and their main carer
- Cohort 2: 9-month-old children and their main carer

Nationally representative samples

Open access to data

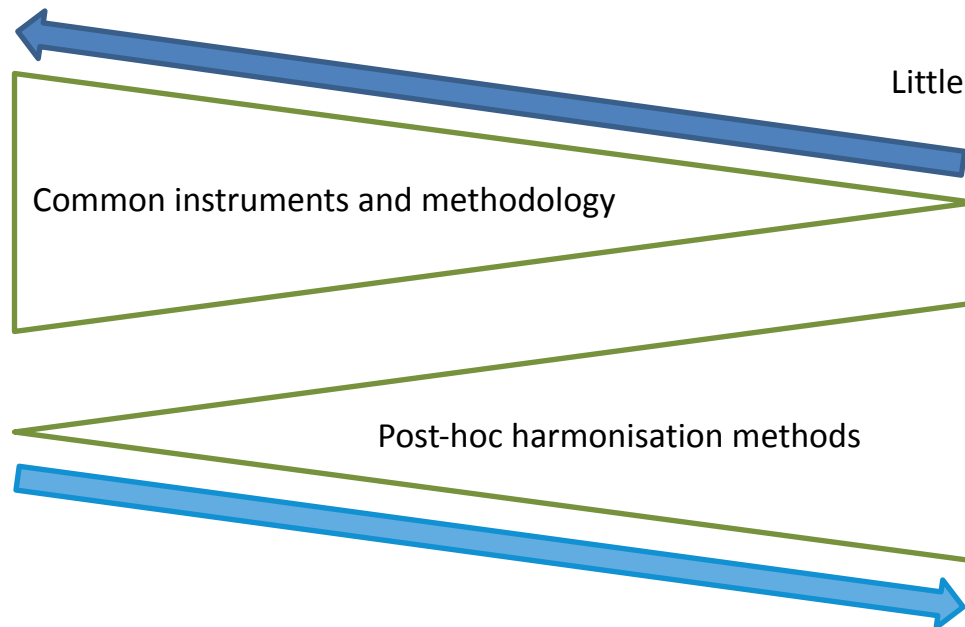
Harmonization

GUIDE

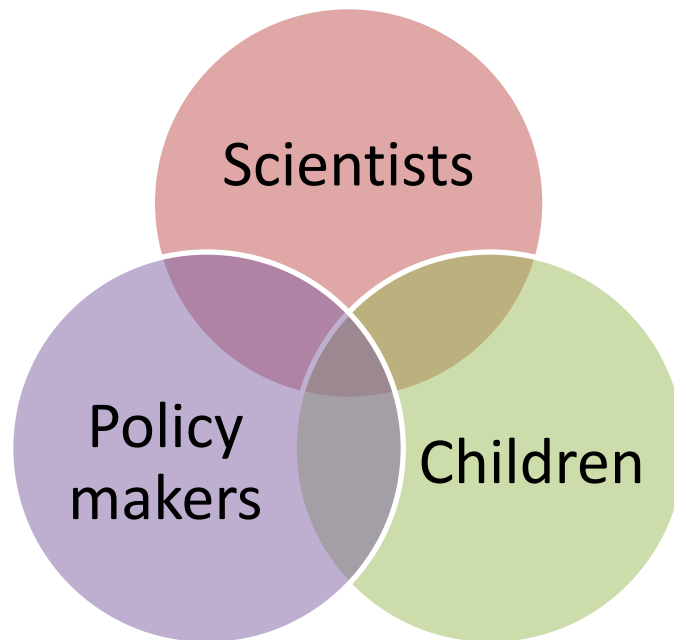
Fully harmonised
High comparability

Previous Studies

Little attempt to harmonise
Low comparability



Designing GUIDE



Wave 1

COVID Cohort 1: Child Cohort (8 years old)

Child Questionnaire

- 1 Psychological well-being
- 2 Emotional wellbeing
- 3 Physical wellbeing
- 4 Social wellbeing
- 5 Family and home
- 6 Friendships
- 7 School
- 8 Neighbourhood
- 9 Material conditions
- 10 Activities
- 11 Health
- 12 Children's rights and voice

Parent Questionnaire

- 1 Household Information
- 2 Socio-Demographics
- 3 Childcare, Parental Support and Parenting
- 4 Child's Education
- 5 Child's Activities
- 6 Pregnancy and Birth
- 7 Child's Health and Well-Being
- 8 Health and Well-Being
- 9 Employment and Socio-Economics
- 10 Housing, Neighbourhood and Community

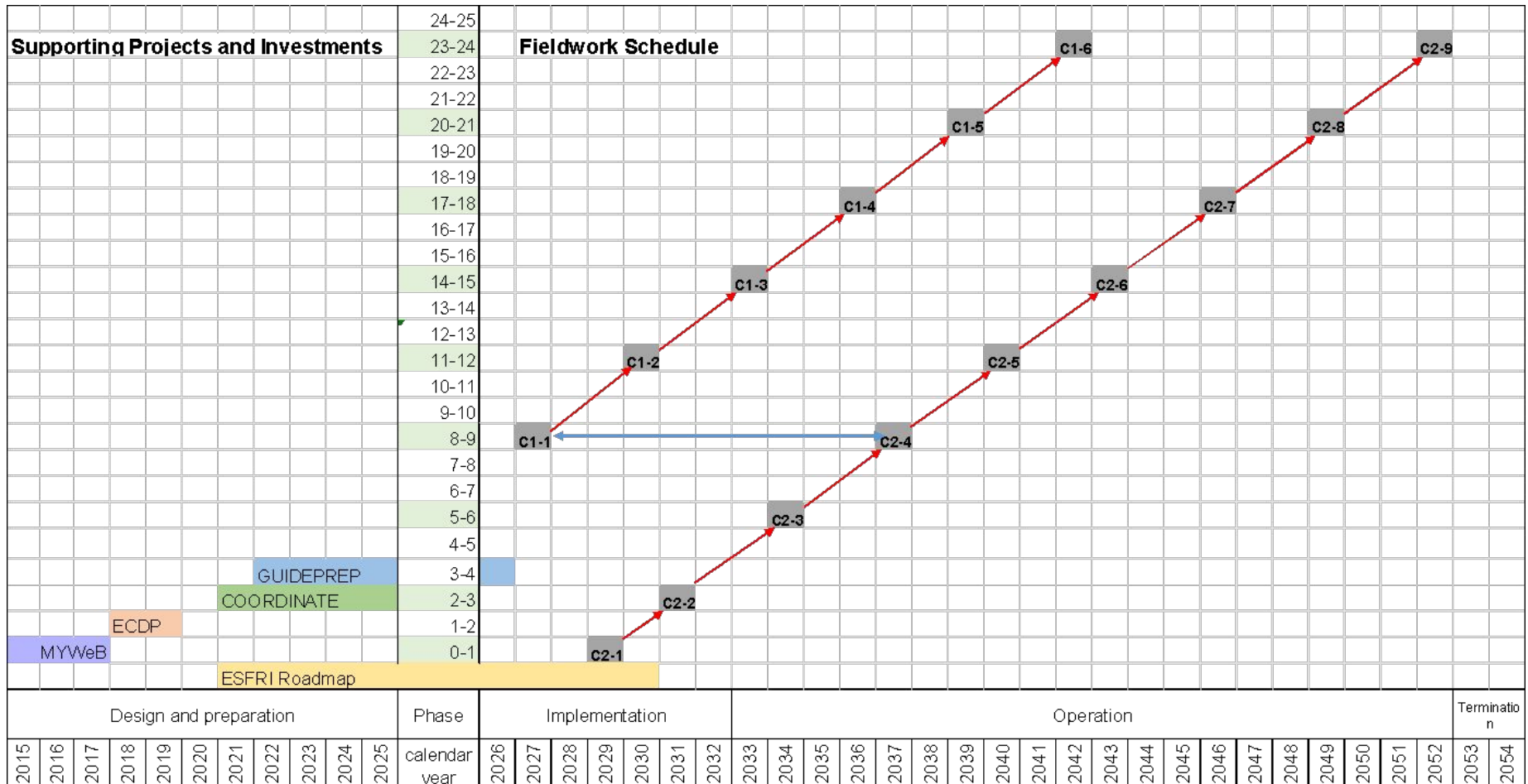
Cohort 2: Birth (9 months)

Parent Questionnaire

- 1 Household Information
- 2 Socio-Demographics
- 3 Childcare and Parental Support
- 4 Child Functioning and Relationships
- 5 Baby's Development and Habits
- 6 Pregnancy and Birth
- 7 Baby's Health and Nutrition
- 8 Health and Well-Being
- 9 Employment and Socio-Economics
- 10 Housing, Neighbourhood and Community

Digital life

GUIDE Timeline



Why we need GUIDE



**CHILD OF THE
NEW CENTURY** ★
United Kingdom



Mother and Child
Cohort Study
Norway



Transitions from
Education to
Employment, Switzerland

NEPS
National Educational Panel Study
Germany



Danish
Longitudinal Study
of Youth



Growing Up in
Hungary



Danish National
Birth Cohort Study



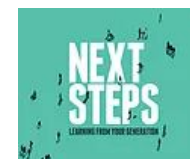
**Growing Up
in Ireland**
National Longitudinal
Study of Children



Netherlands



UNICEF, Innocenti,
Italy



United Kingdom



ELFE: French
Longitudinal Study
of Children

Why do we need GUIDE?



GUIDE is Europe's first longitudinal study of children and youth.



It focuses on political utility, operational quality, and scientific excellence.



Previous birth cohort studies are in individual countries.



There is no mechanism for making accurate cross-national comparisons using harmonised data.



The utility of cross-national comparisons has been demonstrated by cross-sectional studies (e.g., PISA, UNICEF), but these studies cannot explain cause and effect — only longitudinal studies can do this.



Therefore, there is a **strong need** for a European-wide longitudinal birth cohort study to inform policy nationally and across Europe.

Three routes to social innovation for health equity

A

**Implement
social science
into the
medical sphere**

GBD Study
(work in progress)

- GBD 2027: low education as the first social risk factor for all-cause mortality
- GBD 2029: possible extension to cause-specific mortality

B

**Implement
health perspectives
into existing
social science
research
infrastructures**

ESS Health Module
+ CRONOS

- Ready to be used

C

**Start from
scratch with
a big idea**

GUIDE Study

- First data collection in 2027
- Will become freely available

Together, these three routes create **complementary international research infrastructures for measuring, understanding, and reducing health inequities.**

Thank you!

Terje A. Eikemo

Professor of sociology

Leader, CHAIN

Editor-in-Chief,

Scandinavian Journal of Public Health

*Health equity is not only a scientific goal,
but a societal responsibility.*

