



2020

CHAIN AT A GLANCE

Annual Report 2020



Data capacity building during a pandemic

Although the pandemic has prevented CHAIN's growing team from meeting in-person during 2020, we leave behind a remarkably productive year in terms of outputs and events. This report presents a selection of our achievements during the year that has passed.

Some facts did not change in 2020. There is still no country in the world that has been able to fully protect their populations from the negative health consequences of poverty. This results in large socio-economic inequalities in health, which are transmitted from one generation to the next.

Despite this, there is still no system in place to monitor the extent and variation of these differences over time and across space. This task suddenly became more urgent in 2020, as COVID-19 is currently hitting countries and societies unequally. This has led to increased global attention to the research and policy areas that are placed in the hearth of CHAIN's activities.

Importantly, we have observed an increased need for high-quality data with sufficient geographical breath and analytical depth to arrive at clear-cut policy responses that are effective in reducing the impact of COVID-19 and future pandemics. However, comparative

data covering many countries is hard to find and the availability and quality of existing data vary enormously, disfavoring countries in the Global South.

Therefore, CHAIN's vision to promote health equity in unequal societies through data capacity building and research excellence has gained further importance. As this report shows, we have progressed in creating a global data and research infrastructure, which will enhance CHAIN's further ambitions to monitor, explain and eventually reduce socio-economic health inequalities within and between countries.

I hope you will find interest in reading about CHAIN's key research contributions from the past year, including many of our policy events, about which you can read more on our social media channels.

Finally, I want to thank the whole CHAIN team and our collaborators for all the excellent work during a difficult year for public health.

**- Professor Terje Andreas Eikemo,
Leader of CHAIN**

CHAIN AT A GLANCE

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1

CHAIN - Centre for Global Health Inequalities Research

CHAIN is the leading centre and interdisciplinary research network for global health inequalities, based at the Norwegian University of Science and Technology (NTNU) in Trondheim. It brings together expert researchers in the field of health and social determinants, civil society and the UN system to advance health inequalities research, especially for children's health.

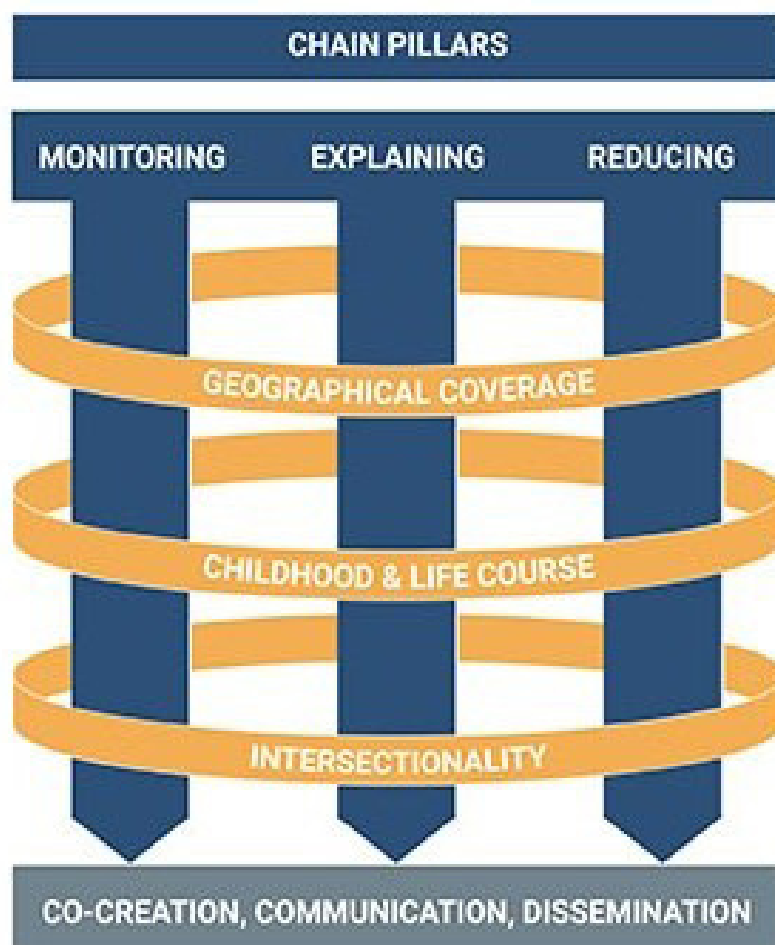


The CHAIN Structure

CHAIN works towards a global transformation in actionable health inequalities to

1. **monitor** health inequalities, by describing the magnitude and variation of socioeconomic inequalities in health and mortality in the world through time and space.
2. **explain** how these inequalities arise.
3. **reduce** health inequalities by evaluating interventions that are effective in promoting health equity.
4. reduce the distance between **research, policy and practice** through outreach activities.
5. develop the **next generation** of health inequality researchers.

Our activities are structured in three pillars. Their results feed into CHAIN's co-creation, communication and dissemination activities aimed at making bridges between research, policy and practice.





CHAIN is the result of a unique partnership between academic institutions, policy agencies, international organisations, and the UN system. Together, we are reducing the distance between research, policy and practice.

Bocconi

**Erasmus
University
Rotterdam**



IHME
Measuring what matters



International Agency for Research on Cancer





MONITORING HEALTH INEQUALITIES

CHAIN works intensively on building capacity to collect, analyse and share data that can help us monitor health inequalities in Europe and beyond.

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Our joint efforts to strengthen the availability of cross-national data infrastructure will greatly improve our ability to monitor health inequalities over time and across countries.

Wilma Nusselder
Assistant Professor in Medical Demography
Department of Public Health
Erasmus Medical Centre



New CHAIN-module in the European Social Survey will help us evaluate the consequences of the pandemic

CHAIN has taken a big step forward in our ability to monitor health inequalities and their determinants over time through the [European Social Survey \(ESS\)](#). The biennial European Social Survey maps the attitudes, beliefs, and behaviour patterns of people in Europe. In 2014, CHAIN implemented a health inequalities questionnaire (module on the social determinants) in the survey. When the [first module was implemented in the 7th round of ESS in 2014](#), it became the first health survey to include rich questions on the stratification systems of societies. This allowed us to identify the deeper mechanisms linking social inequality with health.

A module on the social determinants of health will again be implemented in the 11th round – set to be released in 2023. We expect that the module will become a crucial publicly available data source for the evaluation of the social, economic, and health-related consequences of the COVID-19 pandemic, in addition to numerous other structural inequalities. CHAIN's long-term ambition is to expand our social determinants module to all world regions, making it the world's first comparative survey on health equity.

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To monitor the wellbeing of children and young people, CHAIN has become partner of EuroCohort

Health inequalities start to emerge during early childhood, and comparative follow-up research can help us understand the mechanisms at play. CHAIN has invested in, and will take part in, a large-scale comparative cross-national cohort study. The [European Cohort Development Project \(ECDP\)](#) is a Design Study which will provide, over the next 25 years, comparative longitudinal data on child and young adult wellbeing.

A global survey on the safe re-opening of schools

Schools all over the world have been closed during the COVID-19 pandemic. In order to address the challenges and consequences associated with this, CHAIN and other partners are collaborating with the UNESCO Chair for Global Health and Education and the WHO Collaborating Centre on Global Health & Education on a [global survey on the safe reopening of schools](#). The survey will explore the public health measures that have been put in place in schools; communication of guidance at national and/or local level, and the facilitators or barriers to safe reopening. The overall aim is to gather the experiences and opinions of education and health professionals about the processes in place in their countries and territories to reopen schools safely during the COVID-19 pandemic, and to keep them open.

Global systematic reviews and meta-analyses on the association between parental education and child mortality

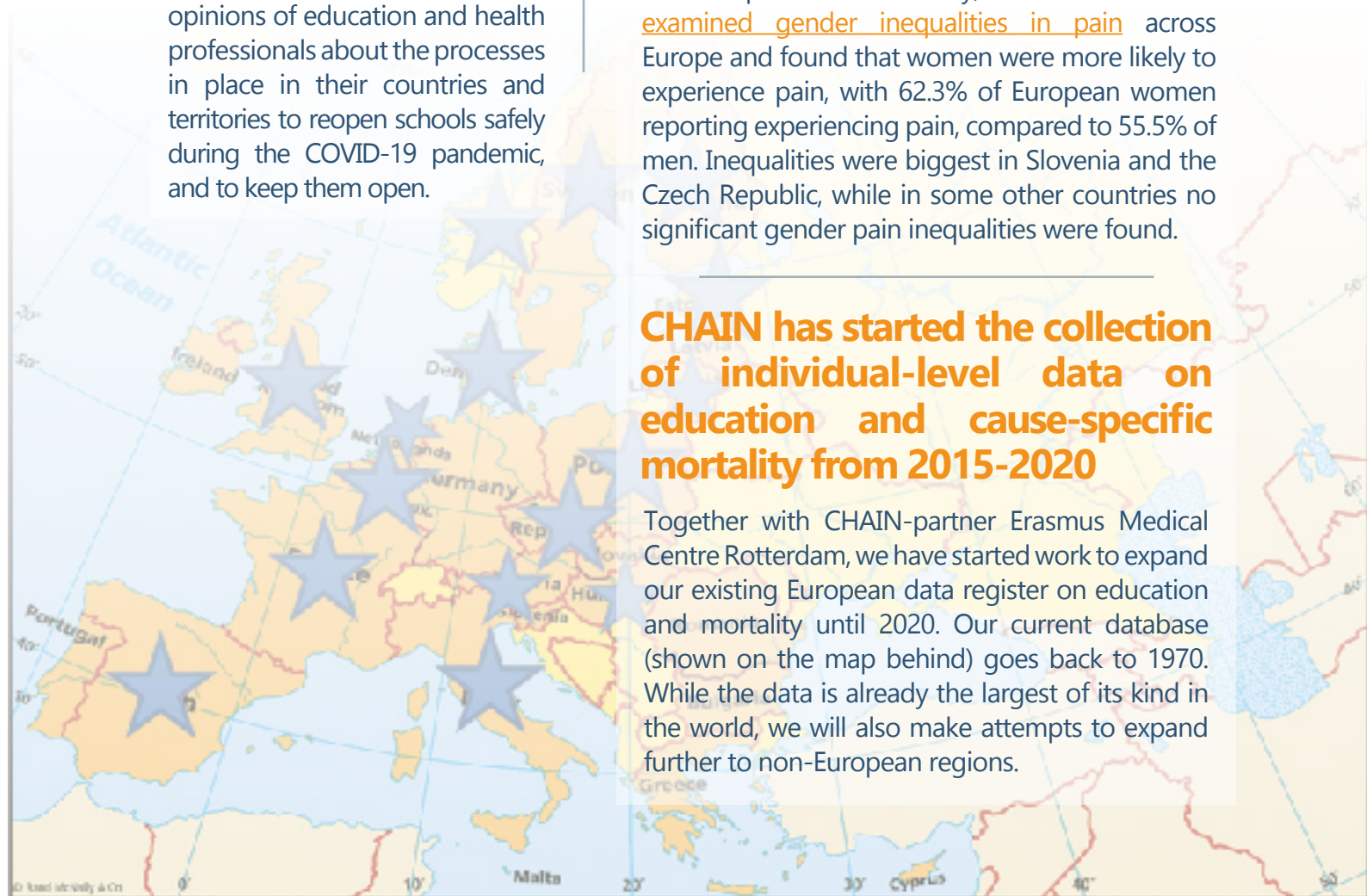
In 2020, CHAIN published research and data sources to establish the global link between education and mortality. We focused both on the links between parental education and child mortality (to be published in The Lancet in 2021), and on the links between one's own education and own mortality. These are necessary steps that will support our future ambition to include socioeconomic factors into the Global Burden of Disease Study.


Examining the gender pain gap in chronic pain

While chronic pain is increasingly considered to be a public health issue, little is known about differences in chronic pain between genders. Using data from the European Social Survey, CHAIN researchers [examined gender inequalities in pain](#) across Europe and found that women were more likely to experience pain, with 62.3% of European women reporting experiencing pain, compared to 55.5% of men. Inequalities were biggest in Slovenia and the Czech Republic, while in some other countries no significant gender pain inequalities were found.

CHAIN has started the collection of individual-level data on education and cause-specific mortality from 2015-2020

Together with CHAIN-partner Erasmus Medical Centre Rotterdam, we have started work to expand our existing European data register on education and mortality until 2020. Our current database (shown on the map behind) goes back to 1970. While the data is already the largest of its kind in the world, we will also make attempts to expand further to non-European regions.





3 EXPLAINING HEALTH INEQUALITIES

In 2020, CHAIN took new steps in explaining how socioeconomic status relates to health. We looked at factors at the individual level such as one's own resources and working conditions, but also at the role of health systems, technologies and trade agreements.

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Cancer screening is an important global health determinant. It has been a great experience to work with CHAIN on the assessment of the quality and status of cancer screening programs in Latin-American countries

Partha Basu, MD, PhD
*Deputy Head, Early Detection, Prevention & Infection Branch
International Agency for Research on Cancer*

The role of technology in explaining health inequalities

Technological innovations will shape health inequalities in the future. How can those changes be modelled? In the new [Handbook of Global Health](#), Daniel Weiss and Terje Andreas Eikemo argued that technological innovations, which are increasingly valued as socioeconomic capital, have the potential to both mediate and increase health inequalities, but that more research needs to be done to detect how these innovations are influencing the persistence and growth of social inequalities in health. The chapter presents a conceptual model of the mechanisms throughout the social spectrum that affect social determinants of health and health equity, and the theoretical and empirical research that support this model. The chapter on technological innovations and social inequalities is available [here](#).

In another [paper](#) published in *Sociology of Health & Illness*, Daniel Weiss investigated patterns of adoption and diffusion of innovative health technologies by socioeconomic status to assess the extent to which these technologies may be a fundamental cause of health-related illness. Both the chapter and study were part of CHAIN's [HEAL-Tech project](#), which found that there were social gradients in the adoption of the technologies, with higher social groups having higher adoption rates.

The role of flexible resources in explaining inequalities

In [one of the first European studies](#) examining the association between socioeconomic status and morbidity for health conditions with high and low levels of preventability, we used 2014 European Social Survey data to explore the links between educational status and health conditions. We found more educational gaps among health conditions that are highly preventable compared to those with low levels of preventability.

“ **We found more educational gaps among health conditions that are highly preventable compared to those with low levels of preventability.** ”

The role of health systems in explaining health inequalities

Amenable mortality describes deaths which are preventable with timely and effective health care. A [CHAIN study](#) examined to what extent the strength of educational differences in mortality amenable to healthcare vary among European countries and between European healthcare system types. The study found that inequalities in mortality amenable to healthcare were present in all healthcare systems, although with important variations, suggesting that factors located within healthcare systems are relevant for health equity.

Collecting insights in the characteristics and performance of cancer screening programmes across the globe

As a partner in CHAIN, the International Agency for Research on Cancer (IARC) conducts research that focuses on reducing health inequalities in cancer screening. Its [Cancer Screening in Five Continents \(CanScreen5\)](#) project collects and harmonises information on the characteristics and performance of cancer screening programmes across the globe. This information is disseminated for improved programme management and informed policy-making.

In 2020, IARC helped foster a network of collaborators in the field of cancer screening in the Community of Caribbean and Latin-American States. Stakeholders include representatives of the Pan American Health Organization (PAHO), representatives from

Ministries of Health, health providers, and data managers. The network provides insights into the barriers in cancer screening at different levels; identifying those barriers is key not only for achieving the project goals, but also the long-term sustainability of the proposed interventions. While only recently established, feedback from the network of collaborators has been very positive, highlighting the improvement of communication among key stakeholders involved in the cancer control process when collecting the information/data requested by the project. Early 2021, IARC will launch capacity-building activities for the network in the form of an interactive online facilitated course and live sessions with keynote lectures.

CanScreen5



“Labour market regulations need to be considered in the formulation of strategies to prevent non-communicable diseases.”

Linking working conditions and occupational inequalities in NCDs

We published a [paper](#) that examined the relationship between working conditions and occupational inequalities in non-communicable diseases (NCDs) across Europe. The results suggest that employment and working conditions are important determinants of occupational inequalities in NCDs and thus that labour market regulations should be considered in the formulation of NCD prevention strategies.

The USMCA trade agreement –an improvement for health?

What is the health impact of the re-negotiated trade rules for the United States-Mexico-Canada (USMCA) Agreement, a free trade agreement that links the economies of the United States, Mexico, and Canada? This [CHAIN paper](#) updated a previous analysis of the agreement and found some health-positive amendments, especially in the areas of pharmaceuticals and labour rights. It is argued however, that the agreement continues to subordinate known or potential health costs of many of its measures to dubious claims of aggregate economic gains. Further, we argue that these gains, even if materialised, are likely to accrue to those atop the income/wealth hierarchies in all three nations.



4 REDUCING HEALTH INEQUALITIES

CHAIN has worked further to obtain evidence of what works to reduce health inequalities. This work reflects diverse ongoing original research projects, as well as raising awareness of the key public health challenges of the COVID-19 pandemic.

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CHAIN's research has contributed greatly to the identification of interventions that could reduce health inequalities in various policy contexts. It has been a pleasure to work in the Reducing Pillar and present its work at various global policy events.

Professor Clare Bamba
Professor of Public Health
Population Health Sciences Institute, Faculty of
Medical Sciences, Newcastle University

Kam Sripada spearheads new UNICEF programme for child health and environmental health

In 2020, CHAIN postdoc Kam Sripada spearheaded the creation of a new programme area at UNICEF focusing on the growing global health problems around environmental pollution and climate change. UNICEF launched a strategic framework to guide this work, called '[Healthy Environments for Healthy Children](#)' in January 2021, capping nearly 2 years of collaboration. UNICEF staff from over 40 countries joined a series of webinars following the launch to learn more about embedding children's environmental health into their portfolios.

The collaboration between CHAIN and UNICEF led to two reports that translated research about child health inequalities into increased engagement by a UN-level agency and communicated these findings to countries across the world.

“*The pandemic has offered an opportunity to re-imagine the post-COVID world and build a better industry that supports the rights of every family and child.*”

Demonstrating that lead exposure is poisoning children

A ground-breaking report showed that lead exposure is poisoning 800 million children worldwide. The report, called '[The Toxic Truth: Children's Exposure to Lead Pollution Undermines a Generation of Future Potential](#)', came out of a collaboration between UNICEF, Pure Earth, and CHAIN. It found that a third of the world's children are poisoned



by lead. Childhood lead poisoning is estimated to cost lower- and middle-income countries almost \$ 1 trillion due to the lost economic potential of affected children over their lifetimes.

Helping companies improve their impact on children in the garment and footwear industry

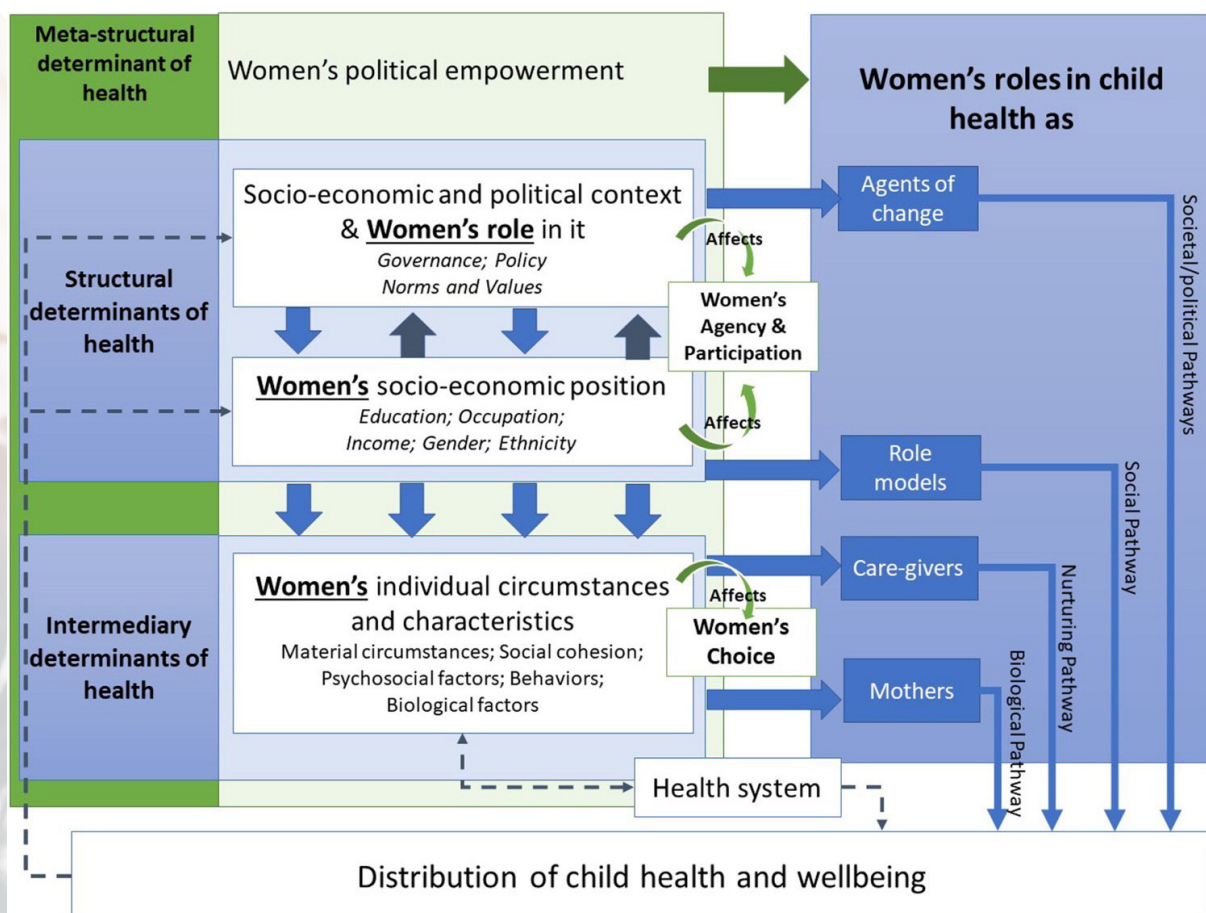
COVID-19 is changing global supply chains, with impacts on livelihoods and living conditions around the world. [New guidance](#) from UNICEF Norway and Norges Bank, with contributions from CHAIN, supports companies in improving their impact on children affected by the garment and footwear industry. Parents and children who work in and near these industries are exposed to toxic chemicals and other health threats. While the pandemic had led to loss of income for these families, it has also offered an opportunity to re-imagine the post-COVID world and build a better industry that supports the rights of every family and child.

Women's political empowerment and health outcomes for children

While the empowerment of women is considered an essential element of progress towards the Sustainable Development Goals (SDGs), the effect of women's political empowerment on their own and on child wellbeing is unclear. CHAIN PHD student Elodie Besnier explored whether women's political empowerment is associated with positive health outcomes for children under 5 years old.

The study used the V-Dem project's 'Women's Political Empowerment Index' (WPEI) in combination with SDG indicators of child health from The Global Burden of Disease study to estimate the impact of women's political empowerment on child mortality, stunting, and immunisation coverage. The study controlled for structural and socioeconomic indicators from the SDGs and potential lagged effects. It found that:

1. The WPEI is associated with improved nutrition and immunisation, but its substantive effect is small.
2. High-, low-income and least-developed countries benefit more from the effect of women's political empowerment on child mortality.
3. The effect of women's political empowerment on stunting is stronger in middle-income countries while its effect on immunisation is more relevant to low-income and least developed countries.





POLICY & OUTREACH

To ensure our research has real impact, we engage with researchers and policy-makers inside and outside of the public health community.

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CHAIN produces valuable evidence on the extent of health inequalities, what causes them, and what we can do to address them. We share these findings with the public health community and feed them into the national and European policy-making processes. Only by working together, can we achieve real progress towards greater health equity.

Caroline Costongs
Director
EuroHealthNet

Dialogue on data and health inequalities research

During the 2020 World Congress on Public Health, CHAIN led an online event on developments in the world of data and how these affect health inequalities research. Speakers came from UNICEF, the Institute for Health Metrics and Evaluation (IHME), the World Health Organization, and the Rockefeller Foundation.

- [IHME's](#) Emmanuela Gakidou reflected on CHAIN and IHME's ongoing efforts to integrate education as a data point in the [Global Burden of Disease Studies](#).
- Salma Abdalla, Lead Project Director at the Rockefeller Foundation's [3D-Commission](#) discussed the work that the Commission has initiated to engage policymakers to integrate data and social determinants into their decision-making processes.
- Dr Samira Asma, Assistant Director General of the [WHO Division of Data Analytics and Delivery for Impact](#), spoke about the importance of data to know who is being left behind and to ensure progress towards the SDGs.
- Nicole Valentine, Director of the WHO Social Determinants Division, discussed the use and importance of high-quality and comparable data

A video of the Dialogue is available [here](#). The 2020 Fall edition of EuroHealthNet Magazine also included an article about the Dialogue,





CHAIN reviews impact of actions to reduce health inequalities in Europe

Joint Action on Health Equity Europe (JAHEE) is a European collaborative project focusing on inequalities in health and funded through the third health program in the EU. The project involves the European Commission and 22 EU member states, as well as Bosnia-Herzegovina, Norway and Serbia. JAHEE is implementing over 70 actions with the objective to improve health monitoring systems, improve healthcare access, healthy living environment, migrant health and to strengthen health in all policies.

CHAIN has been invited to review the impact of these actions. The CHAIN review team consists of Terje Andreas Eikemo, Clare Bambra, Mirza Balaj, Anna Gkiouleka, Emil Øversveen, Solomiya Kasyanchuk and Pilar Vidaurre Teixidó, and our report will be finalized in 2021.

CHAIN meets with the European Commission's DG SANTE to discuss how to measure access to health care

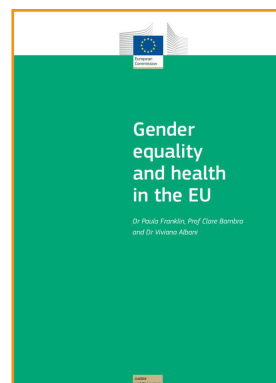
In April 2020, CHAIN research coordinator and postdoc Mirza Balaj met with representatives of the EU's Directorate-General for Health and Food Safety to discuss what indicators can help assess citizens' access to health care. Future ways of working together were discussed, and CHAIN shared its work on including a health module in the European Social Survey. This module allows for the examination of health inequalities in Europe and the drivers of these inequalities.

Europe's Beating Cancer Plan

The European Commission has initiated a third report on the implementation of cancer screening services. For the first time this report will examine social inequalities in cancer. CHAIN, represented by Mirza Balaj, has been invited by the WHO's Agency for Research on Cancer (IARC) to co-lead the work package on Cancer Inequalities. Europe's Beating Cancer Plan is a key pillar of a stronger European Health Union and a more secure, better-prepared and more resilient EU.

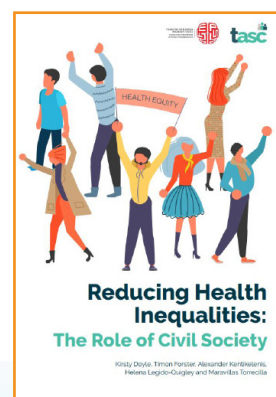
Gender equality and health in the EU

Prof Clare Bambra and Dr Viviana Albani worked with the European Trade Union Institute to write a [report on gender equality and health in the EU](#). The report, which was commissioned by the EU's Directorate-General for Justice and Consumers, provides a cross-cutting view of the different health challenges that men and women face. It looks at challenges at the individual level in mental and physical health, as well as within healthcare systems. The report presents evidence and outlines main areas for policy development, along with illustrative practices for improving access to services and on making such services more gender-sensitive.



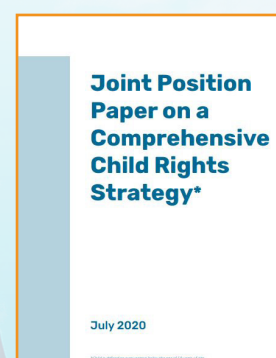
Reducing Health Inequalities: The Role of Civil Society

A [report](#) by CHAIN's Alexander Kentikelenis and partners issued by the Foundation for European Progressive Studies (FEPS) examines inequalities in access to healthcare services and explores the role that civil society organisations (CSOs) play in reducing these health inequalities. The role of CSOs is emphasised in the report as it serves as an indicator of where the state is failing in relation to healthcare. Using a case study approach, the report provides a comparative analysis of access to diagnostic services in Ireland, Germany and Spain – three European countries with different health systems.



What would a comprehensive EU child rights strategy look like?

CHAIN joined a consortium of 35 public health and child wellbeing organisations to respond to the EU's intention to develop a child rights strategy. In a [joint position paper](#), they set out key principles to guide the strategy as well as priorities and actions for the EU, Member States, and partner countries to take. Among other things, it called for children's rights and wellbeing to be mainstreamed in all EU policies, and for the strategy to ensure the rights of all children, especially those in vulnerable situations.



CHAIN & COVID-19

Historically, pandemics have been experienced unequally with higher rates of infection and mortality among less educated people. Emerging evidence suggests that these inequalities are being mirrored today in the COVID-19 pandemic. Both then and now, these inequalities have emerged through the syndemic nature of COVID-19 — as it interacts with and exacerbates existing social inequalities in chronic disease and the social determinants of health.

CHAIN undertook several activities in response to the pandemic.

What COVID-19 teaches us about inequality and the sustainability of our health systems

As COVID-19 painfully exposes the existing and persisting health inequalities in our societies, it is clear that the impact is heaviest on the lives of those living in deprivation or facing difficult socioeconomic circumstances. Drawing on [CHAIN findings](#) on the socioeconomic distribution of non-communicable diseases in Europe, CHAIN-partner [EuroHealthNet published a statement](#) on what the ongoing pandemic is teaching us about inequalities in our societies and the sustainability of our health systems. In it, [EuroHealthNet](#) argues that we need to reorient our systems towards prevention and promotion, and reduce chronic diseases and health inequalities.

Vaccine distribution strategies need to ensure that more vulnerable communities are not placed at disadvantage when it comes to vaccine supply and delivery.

Calling on policy makers to consider social inequalities in the distribution of vaccines

In [an editorial](#) in the European Journal of Public Health, [Newcastle University](#) faculty members and CHAIN partners Adam Todd and Clare Bambra called on policy-makers to consider the inverse equity hypothesis in the COVID-19 vaccine roll out. This hypothesis suggests that when new health interventions are developed, they initially favour more privileged members of society due to preferential access and uptake, thereby increasing health inequalities in the short term. Only over the longer term do such interventions eventually reach all parts of societies.

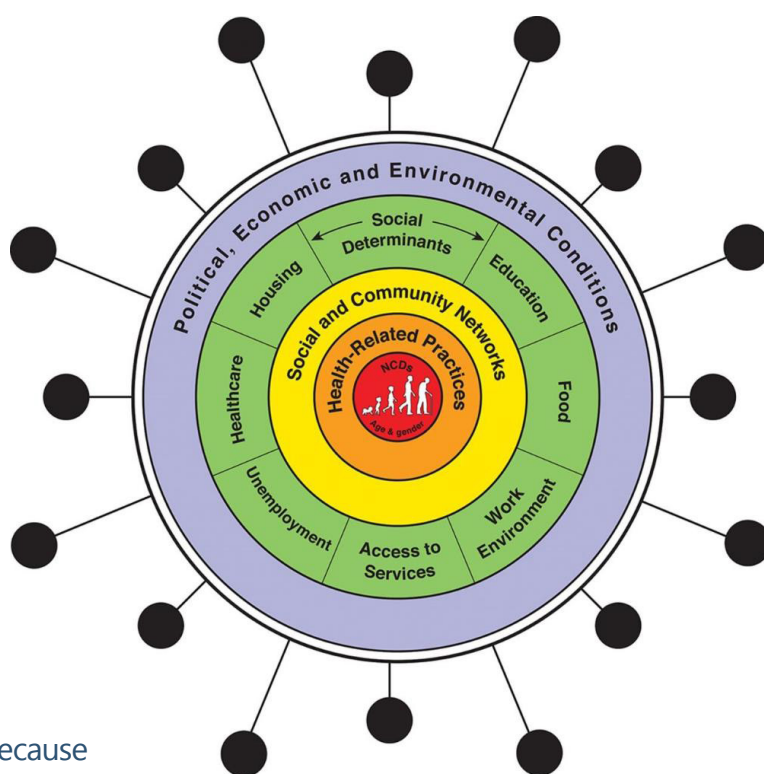
While the discovery of COVID-19 vaccines represents a significant breakthrough, it will not necessarily address inequalities in the experience of the pandemic. To avoid exacerbating such inequalities, vaccine distribution strategies need to ensure that more vulnerable communities are not placed at disadvantage when it comes to vaccine supply and delivery.

CHAIN & COVID-19

The syndemic pandemic: We are not all in it together

During the early days of the pandemic, the COVID-19 virus was seen as the 'great equaliser'. The more we learned about the pandemic, however, the more it became evident that COVID-19 is experienced differently, with higher rates of infection and mortality among the most disadvantaged communities.

In a key 2020 [CHAIN publication](#) we argue that we are currently experiencing a "syndemic pandemic". The paper shows that this is because COVID-19 interacts with existing inequalities in social determinants of health, which are exacerbating existing inequalities in chronic diseases in disadvantaged communities. Additionally, the potential consequences of COVID-19 policy responses and austerity measures to counter the probable post-pandemic slump will likely be long-term and of significant impact for health inequalities because of their effect on political and economic pathways. Ultimately, for the COVID-19 pandemic not to increase health inequalities for future generations, the right public policy responses must be taken.



These include:

- Expanding social protection
- Expanding public services
- Pursuing green inclusive growth strategies.

Based on the popular paper, CHAIN created an infographic called '[The COVID-19 pandemic and health inequalities: we are not all in it together](#)'. The infographic was translated into [Norwegian](#) and [Italian](#).

CHAIN & COVID-19

CHAIN researcher appointed to Norwegian Corona Commission

How did the Norwegian Government handle the COVID-19 pandemic? What were the economic and social consequences of the pandemic and measures to stop the spread of the virus? What can we learn from this extraordinary experience? During 2020, the [Norwegian Corona Commission](#) has examined these and other important questions. CHAIN postdoc [Kristian Heggebø](#) was recruited to join the Corona Commission as part of the secretariat, a position located at the Office of the Prime Minister. The Commission's final report is expected in 2021.

Education as a 'social vaccine' against COVID-19

In December, CHAIN's Terje Eikemo, Clare Bambra and Caroline Costongs came together to discuss how COVID-19 has exposed and aggravated health inequalities in our societies, and how education can be a 'social vaccine' against such and future threats to health. The webinar was part of UNESCO's Global Health & Education webinar series.

The recordings of the webinar are available [here](#).

COVID-19 and refugee camps

In a [commentary](#), CHAIN researchers have called for awareness of the added risks that COVID-19 poses for people in refugee camps. Already experiencing vulnerability, refugees also face difficult living conditions, risk of deportation, and great uncertainty regarding their future. While they have a high prevalence of physical and mental health problems, they also face various barriers in accessing healthcare services. It is easy to imagine that people residing in these camps will be disproportionately affected by COVID-19. The commentary also sets out a number of evidence-based solutions to mitigate the health and social impact of the pandemic.

CHAIN IN THE MEDIA

One of CHAIN's main aims is to bridge the gaps between research, policy and practice and to raise awareness of the issue of health inequalities and the various measures that can help reduce them. Besides outreach to the public health community and policy-makers, media exposure helps CHAIN inform the general public of the impact of inequalities and the need to take action. In 2020 again, some of CHAIN's result were picked up by the media.

Here are some of the highlights:

Emil Overseen wrote an essay on the pandemic and health inequalities for the Norwegian magazine Manifest Tidsskrift. The article, called 'Pandemien og sosiale helseforskjeller', is available [here](#).

Professor Clare Bamba's paper *The COVID-19 pandemic and health inequalities* was picked up by the [BBC](#) and the [Daily Mail](#) to explain why the coronavirus has hit Northern England worst.

['The Toxic Truth: Children's Exposure to Lead Pollution Undermines a Generation of Potential'](#) analysed data from IHME on lead exposure. The report included new analyses by IHME and Pure Earth and received input from CHAIN. The report and details about lead poisoning among Norwegian children were highlighted by the Norwegian public broadcaster [NRK](#) (in Norwegian) and [Gemini](#) (in English and Norwegian).

Developing the next generation of health inequality researchers:

The Heal-Tech Project

Three PhD candidates in CHAIN received their doctoral degrees in 2020. They were all part of our Heal-Tech projects which addressed how technological innovations affect the social health gap.



Imagine that a hospital has access to a new medical technology which can improve the lives of diabetes patients. However, this new technology is expensive and cannot be shared among all patients. Which patients should be offered this effective, but expensive technology?

One of the central features of Western culture is a strong belief in the potential for technological development to better our lives and societies. This also holds true for the medical field, in which technologies are often framed as a key factor in improving population health and creating more efficient health care institutions.

However, technological advances may also create and reinforce inequalities if their benefits are unequally distributed. This often happens when a new technology is scarce, expensive, difficult to use or frequently replaced by even better technologies. In such cases, the new technologies are disproportionately accessed and used by people with higher social status, such as higher education or income.

All of this leads to the key question of the NTNU Health funded Heal-Tech Project: Do technological advances increase or narrow the health gap between rich and poor?



The implementation of medical technologies does not necessarily lead to more equal health outcomes. Design, distribution, appropriation and experience factors in as well.

The three PhD candidates studied the relationship between innovative technologies and health inequalities from a variety of perspectives and methods, including quantitative methods, qualitative observation and in-depth interviews and textual analysis of official policy documents. They found that new, expensive and scarce technologies (such as new insulin measurement devices) served to increase social inequalities, while 'older' and more accessible technologies (such as blood pressure measurement devices) served to decrease such inequalities.

A key policy implication is that we should not assume that the implementation of medical technologies will automatically produce better and more equal health outcomes. Rather, the effect of medical technologies depends on how they are designed, produced and distributed, and how they are appropriated and experienced by the people who use them.

Some publications of the Heal-Tech Project were on:

- Selective empowering in the distribution of medical technologies
- Theorising social inequalities in the use and perception of diabetes self-management technologies

Håvard Rydland's latest paper on [educational inequalities in mortality amenable to healthcare](#), which was part of the project, was selected as an Editors' Pick in Plos One for 2020. Congratulations to Håvard and the team!

More information on the Heal-Tech Project is available [here](#).



THE CHAIN TEAM

CHAIN is led and coordinated from Trondheim (Norway), where most of our researchers are based. The Trondheim team works with collaborators in Norway and all over the world.

“ While much of the daily work is conducted in the US, Belgium, Netherlands, Italy, UK, and France, CHAIN's global reach is ensured through our collaborations with the Global Burden of Disease Study (based at IHME, Washington), EuroHealthNet, UNICEF and WHO.

Professor Terje Andreas Eikemo,
Professor of Sociology
Department of Sociology and Political Science
Norwegian University of Science and Technology (NTNU)

All CHAIN work is overseen by CHAIN Leader Terje Andreas Eikemo and Research Coordinator Mirza Balaj at the [Norwegian University of Science and Technology](#) in Trondheim. Their 30-strong team works with our global team to collect data and build data warehouses, to explore and explain the links between our social and

economic circumstances and our health, gathering evidence on what works to reduce health inequalities, and to reach out to researchers and policy-makers in, as well as outside, of the global public health community.

THE TRONDHEIM-TEAM



Norwegian University of
Science and Technology

Leader: Terje Andreas Eikemo

Research Coordinator: Mirza Balaj

Professors: Indra de Soysa, Henning Finseraas and Tim Huijts

Senior researcher: Courtney McNamara

Post doctoral researchers: Emil Øversveen, Kristian Heggebø, Kam Sripada,

PhD students: Elodie Besnier, Håvard Rydland, Daniel Weiss, Virginia Kotzias, Amanda Aronsson, Roosa Tikkanen

Librarians: Solvor Solhaug and Magnus Rom Jensen

Social media management: Kam Sripada

Business advisor: Kim Gabrielli

Research assistants: Lorena Donadello, Pilar Vidaurre, Solomiya Kasyanchuk, Anna Gkiouleka, Andreas Tallaksen, Kathryn Beck, Amy Hobbs, Talal Mohammad, Hanne Dahl Vonen, Claire Degail, Celine Westby, Kristoffer Eikemo.

THE GLOBAL TEAM

WP1 Monitoring health inequalities

Erasmus
University
Rotterdam



IHME

Measuring what matters



Norwegian Institute of Public Health

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KEY PROJECTS: GBD Education, European Social Survey round 11, GBHI, Expansion of education-linked mortality data warehouse.

WP2 Explaining health inequalities

International Agency for Research on Cancer



World Health
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Norwegian Institute of Public Health

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KEY PROJECTS: NeuroTox and CanScreen5

WP3 Reducing health inequalities

Bocconi



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KEY PROJECTS: Heal-Tech project Environment and child health

WP4 Bridging research, policy and practice



unicef



United Nations
Global Compact

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KEY PROJECTS: World Leadership Dialogue, UNESCO Global Health & Education webinar series, policy-exchange, publication material



PUBLICATIONS

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2020

CHAIN AT A GLANCE

Annual Report 2020

CHAIN is the leading centre and interdisciplinary research network for global health inequalities, based at the [Norwegian University of Science and Technology \(NTNU\)](#) in Trondheim. It brings together expert researchers in the field of health and social determinants, civil society and the UN system to advance health inequalities research, especially for children's health. To find out more about CHAIN, visit our [website](#) and follow us on [Twitter](#) and [Facebook](#).

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