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NOVA ACTA LEOPOLDINA

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Global Health

From Health Services to Climate Change
and to Social Justice

Programme and Abstracts of the Lectures held at the
Annual Assembly 23rd to 24th September 2022 in Halle (Saale)

Published by Gerald Haug, President of the Academy



NOVA ACTA LEOPOLDINA

Abhandlungen der Deutschen Akademie der Naturforscher Leopoldina

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Jägerberg 1, 06108 Halle (Saale), Germany

Editorial Office: Emil-Abderhalden-Straße 37, 06108 Halle (Saale)

Tel.: +49 345 47239146

Fax: +49 345 47239139

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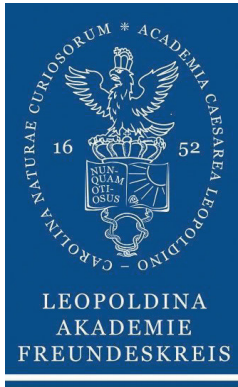
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Thanks

We would like to thank the Leopoldina Akademie Freundeskreis e. V. for the generous support for a programme which enables the participation of secondary school pupils at the Leopoldina Annual Meeting.



Programme

The conference will be held in German and English and will be simultaneously translated into the other language.

Friday, 23rd September 2022

9:00 – 1:00 | Opening Ceremony

Musical Prelude

Welcoming and Opening Speech

Gerald Haug ML, Halle (Saale), Mainz, Berlin

President of the Academy

Welcoming Address

Bettina Stark-Watzinger

Federal Minister of Education and Research

Welcoming Address

Reiner Haseloff

Minister President of Saxony-Anhalt

Welcoming Address by Video

Tedros Adhanom Ghebreyesus

Director General of the World Health Organization (WHO)

Keynote Lecture

Health Equity in Times of a Pandemic

Mike Ryan, Geneva (Switzerland)

11:00 – 11:30 | Break

Award Ceremony

Presentation of the Early Career Award 2022 and
Lecture of the Early Career Awardee

Inaugural Lecture

The COVID-19-Pandemic: Lessons for Global Health

Lothar Wieler ML, Berlin

1:00 – 2:30 | Lunch

Session I | Social Determinants of Health

Moderator:

Lothar Wieler ML, Berlin

2:30 – 3:15

The Unequal Pandemic: COVID-19 and Health Inequalities

Clare Bambra, Newcastle upon Tyne (UK)

3:15 – 4:00

Globesity – A Pandemic of Overweight

Gabriele Stangl ML, Halle (Saale)

4:00 – 4:45

Neglected and Disconnected: Social Determinants of Mental Health

Jürgen Margraf ML, Bochum

4:45 – 5:00

Break

Session II | Health Economic Aspects

Moderator:

Regina T. Riphahn ML, Nuremberg

Vice-President of the Academy

5:00 – 5:45

Identifying the Opportunities in Global Health Challenges: A Biopharmaceutical Perspective

Aida Habtezion, New York (USA)

5:45 – 6:30

The Double Whammy of COVID-19 and TB in India: Countering the Social, Economic and Overall Health Impact

Syed E. Hasnain ML, New Delhi (India)

6:45 – 7:30

General Assembly of Leopoldina Members (by invitation only)

8:15 – 9:15

Evening Lecture

Moderator:

Gerald Haug ML, Halle (Saale), Mainz, Berlin

President of the Academy

International Health Protection and Health Equity

Johanna Hanefeld, Berlin

Saturday, 24th September 2022

Session III | Health Systems Research

Moderator:

Susanne Hartmann ML, Berlin

8:30 – 9:15

**The Promise and Challenge of Health Systems Research:
“A Goat that Belongs to the Whole Village Belongs
to Nobody”**

Irene Akua Agyepong, Accra (Ghana)

9:15 – 10:00

**Beyond Ebola: Social Science in Public Health
Emergencies**

Juliet Bedford (Oxfordshire, UK)

10:00 – 10:30

| **Break**

Session IV | One Health – Complex Systems

Moderator:

Thomas C. Mettenleiter ML, Greifswald – Insel Riems

10:30 – 11:15

**Advancing Global Health Thinking – Evidence-based
Responses to Complex Challenges**

Eva Rehfuess, Munich

11:15 – 12:00

**Standardizing Health AI to Catalyze Innovation in
Digital Global Health**

Thomas Wiegand ML, Berlin

12:00 – 1:30

| **Lunch**

| One Health – Infectious Diseases

Moderator:

Jutta Gärtner ML, Goettingen

1:30 – 2:15

Zoonoses as a Central Topic in Global Health

Thomas C. Mettenleiter ML, Greifswald – Insel Riems

2:15 – 3:00

**Parasites: Drivers and Brakemen of the Global-
Disease-Burden**

Susanne Hartmann ML, Berlin

3:00 – 3:30 | **Break**

| **One Health – Mobility**

Moderator:

Lothar H. Wieler ML, Berlin

3:30 – 4:15

Migration and Health: The Defining Issue of our Time?

Ibrahim Abubakar, London (UK)

4:15 – 5:00

Urban Health Transformation in Asia

Frauke Kraas ML, Cologne

5:00

| **Closing Remarks**

Thomas Krieg ML, Cologne

Vice-President of the Academy

7:00

| **Dinner (by invitation only)**

Venue: Steintor-Variété Halle

Am Steintor 10, 06112 Halle

Abstracts of the Presentations

Keynote Lecture

Mike Ryan, Geneva (Switzerland)

Health Equity in Times of a Pandemic

The COVID-19 pandemic has had a devastating health, social and economic impact across all communities and countries. It has revealed deep weaknesses and inequities in our health systems and exposed major gaps in how our health defences are governed, planned, financed and implemented. The biggest impacts of the pandemic were on the old, the poor, those with underlying health conditions and those without access to adequate health care and vaccination. Much of the suffering and death was preventable.

The frequency and intensity of health emergencies is increasing, and their impacts will continue to grow unless we build stronger and fairer health systems with a focus on preparedness, readiness and resilience. Health emergencies and pandemics begin and end in communities. Health equity can only be guaranteed through inclusivity, trust and a whole-of-society and all-of-government approach.

Our collective future health security must be built on:

- Empowered communities,
- stronger, cohesive, inclusive and accountable governance systems,
- enhanced systems and tools that enable communities and public health authorities to respond rapidly to alerts and
- sustainable and predictable financing mechanisms.

Therefore, health equity needs to be grounded in empowered communities, strong public health systems, and primary health care services, which need to be supported by global and regional HEPR networks, platforms and partners.

Inaugural Lecture

Lothar Wieler ML, Berlin

The COVID-19-Pandemic: Lessons for Global Health

The COVID-19 pandemic has had an impact of great magnitude. The official global death toll has long surpassed a devastating 6 million, and the true number is even higher, while the pandemic is far from over. The last two and a half years have been a learning curve like no other. The pandemic has hit every strata of society, every public health system and every political structure: a public health crisis like no other in modern times. This pandemic has shown why public health is in fact global health. While every response to a crisis has to be systematically evaluated to draw conclusions and lessons, some observations from the perspective of a national public health institute can already be discussed today: (1) Good political governance is key to tackle such a crisis. (2) Strong and resilient public health systems are a prerequisite for the successful management of pandemics. (3) Scientific evidence and trust in public health experts must guide policy making. (4) A public health crisis always hits the marginalised and vulnerable groups of society the hardest.

Session I – Social Determinants of Health

Clare Bamba, Newcastle upon Tyne (UK)

The Unequal Pandemic: COVID-19 and Health Inequalities

This talk will examine the implications of the COVID-19 pandemic for health inequalities. It outlines historical and contemporary evidence of inequalities in pandemics – drawing on international research into the Spanish flu pandemic of 1918, the H1N1 outbreak of 2009, and the recent international estimates of socio-economic, ethnic and geographical inequalities in COVID-19. It then examines how these inequalities in COVID-19 are related to existing inequalities in chronic diseases and the social determinants of health, arguing that we are experiencing a syndemic pandemic. It then explores the potential health consequences of the COVID-19 economic crisis. The talk concludes by reflecting on the longer term measures needed to ‘build back better’ and ensure that the COVID-19 pandemic does not increase health inequalities for future generations.

Globesity – A Pandemic of Overweight

Globesity refers to the phenomenon of the increase in overweight and obesity observed worldwide. The global prevalence of overweight and obesity has doubled since 1980. One-third of the world's population is currently overweight or considered obese. Obesity poses a significant challenge to public health, as it increases the risk for numerous diseases, such as diabetes mellitus, cardiovascular and kidney diseases, and several types of cancers. The fundamental cause of obesity is a mismatch between energy intake and energy expenditure. The globalization of food systems producing more processed, energy-dense, palatable and affordable foods has been identified as a major driver of the obesity epidemic. This problem is exacerbated by physical inactivity. Changes in dietary and physical patterns are the result of environmental and societal changes associated with development and lack of supportive policies in sectors such as health, urban planning, and education. In low- and middle-income countries, obesity is generally more prevalent among adults from wealthy and urban environments, whereas in high-income countries, the prevalence of obesity is disproportionately greater among disadvantaged groups. In 2021, the WHO therefore stated that there is no one-size-fits-all approach based on the experience of high-income countries that can effectively solve the global issue of overweight.

Neglected and Disconnected: Social Determinants of Mental Health

The social side of mental health is a neglected but important issue. Entire populations are at higher risk for mental disorders due to unfavorable social, economic, and environmental conditions. The disadvantage begins before birth and is accumulated over the lifespan. Understanding and improving these disparities, as well as the mental health of the population as a whole, requires looking at the effects of social determinants across the lifespan. In addition, the key barriers to progress of a truncated interpretation of the biopsychosocial model and a negative definition of health as the absence of illness must be overcome. Social factors and positively defined mental health must no longer be neglected in the provision of care, but also in research, relationship prevention and social policy. The comparison of different societies as well as the different groups within our society shows that in the long run a better balance between equality and the achievement principle should be strived for. This is realized, for example, in Scandinavian societies, which perform significantly better in health studies than Anglo-Saxon societies; Germany lies between these two poles. However, when it comes to short-term measures for rapid help, the effects of social measures have been studied even less frequently. A societal debate is urgently needed here, and here treatments with a lasting effect such as psychotherapy have a special role to play.

Session II – Health Economic Aspects

Aida Habtezion, New York (USA)

Identifying the Opportunities in Global Health Challenges: A Biopharmaceutical Perspective

The COVID-19 pandemic has claimed millions of lives and left no person untouched. This moment of collective crisis drove the scientific community at large – including the biopharmaceutical industry – to rethink everything from established modes of R&D and traditional timelines of clinical research, to driving faster and more open collaboration across stakeholders, to finding ways to concretely address the lack of equitable representation in medical research. The result of this unprecedented scientific collaboration was to “move at the speed of science” accelerating the development of transformative vaccines and treatments to address COVID-19, as well as other major threats to public health worldwide. However, the promise of scientific innovation will not be fully realized until we directly address the social determinants of health that drive disease disparities and gaps in health equity. The entire ecosystem must further its efforts to increase inclusivity from concept through the entire research and development lifecycle, so that better health is possible for everyone, everywhere. This lecture shows how Pfizer has adopted “lightspeed” behaviors to bring forward scientific breakthroughs, and innovative approaches to more inclusive medical research and more diverse clinical trials.

Sayed E. Hasnain ML, New Delhi (India)

The Double Whammy of COVID-19 and TB in India: Countering the Social, Economic and Overall Health Impact

While COVID-19 caused more deaths in 2020, TB is the biggest killer in low/middle-income countries. COVID-19 is estimated to increase TB incidence and mortality by 5–10% in the next 5 years. TB treatment dropped by more than one million worldwide, setting the fight against TB back by a decade. According to USAID, over one million fewer cases of TB were reported in 2020 due to the COVID-19 pandemic in 24 high TB-burden countries and about half a million more people are estimated to have died in 2020. Lockdown-mediated disruption in TB services will likely translate into 6.3 million additional cases and 1.4 M deaths globally in the next 5 years.

How did India – a country of more than 1.3 billion people and the biggest vaccine producer of the world with a unique record of administering more than two billion COVID-19 vaccine shots – manage the COVID-19 pandemic while simultaneously having the largest number of TB cases in the world? How did the Indian health system, with its inherent strengths and weaknesses, succeed in dealing with this double whammy? With a marked decrease in reported cases of TB and BCG immunisations, the process has been difficult, but was successfully managed with a massive integration of IT tools. Funding, age and economic inequalities, timing, the economic consequences of lockdown, and non-pharmaceutical interventions are some issues this lecture will try addressing.

Evening Lecture

Johanna Hanefeld, Berlin

International Health Protection and Health Equity

The past twenty years have underlined four key aspects of global health: a) the increasing frequency and speed with which global health crisis such as the COVID-19 pandemic emerge and develop b) the extent to which public health and health protection in one country depends on public health and health protection everywhere c) the crucial role of national public health institute to our collective ability to prevent and respond to these crisis and d) health equity and social justice as central to enabling resilience to crisis. Inequity increases risk and vulnerability to ill health and crisis including pandemics. While public health responses risk increasing health inequities and underlying social injustice. This talk reflects on these developments: the key challenges in international health protection and the core role of national public health institutes as actors essential to health protection and to advancing health equity. It draws on the experiences of the Centre for International Health Protection, the international department of the Robert Koch Institute – Germany's National Public Health Institute.

Session III – Health Systems Research

Irene Akua Agyepong, Accra (Ghana)

The Promise and Challenge of Health Systems Research: “A Goat that Belongs to the Whole Village Belongs to Nobody”

Health Systems comprise all the resources, actors and institutions related to the financing, regulation, and provision of any set of activities whose primary intent is to improve or maintain health. Health systems are thus a common pool resource that societies draw upon to achieve collective health goals. *Health systems research* (HSR) is targeted at the generation and use of evidence to improve the organization and functioning of this common pool resource to support the attainment of collective health goals. Common pool resources often face the challenge in that in belonging to all, it is very easy to belong to nobody and get neglected. Thus, paradoxically, despite acknowledgements of its importance and despite improvements and gains in recent years, health systems research and its potential to support health outcome improvements remains poorly understood, underfunded, and under-utilized. This presentation explores the continuing value and the challenges of health systems research and potential approaches for overcoming these challenges and realizing the full potential of the field in global, national, and sub-national efforts to improve health.

Juliet Bedford (Oxfordshire, UK)

Beyond Ebola: Social Science in Public Health Emergencies

The value of anthropology and other social sciences in responding to public health emergencies certainly gained both visibility and traction during the Ebola outbreak in West Africa in 2013–2016. Since then, social science has become increasingly incorporated into response mechanisms, but it is not always an easy fit. This presentation will highlight experiences from Ebola, Zika, COVID-19 and other protracted crises, and will consider key priorities for the new generation of epidemic intelligence.

Session IV – One Health – Complex Systems

Eva Rehfuess, Munich

Advancing Global Health Thinking – Evidence-based Responses to Complex Challenges

Global health challenges can only be addressed with global, often cross-sectoral collaboration. Interventions in this context should be based on an interdisciplinary and relatively comprehensive evidence base. Yet these interventions represent their own challenges and are increasingly recognized as “events in systems”. This means that often complex interventions (e.g. interplay of multiple components) interact with a complex system (e.g. system adaptation).

Explicitly addressing complexity has manifold implications for designing, implementing and evaluating interventions. For example, the impact of an intervention can vary widely depending on the geographic, socio-cultural, or economic context. Furthermore, while interventions have intended and desired health effects, they also have a range of unintended health, social, or environmental consequences, which may be positive or negative. This complexity should be considered in making decisions, ideally based on an adequate evidence base. Dealing with complexity requires a combination of proven and specifically advanced scientific methods, but also innovative approaches in all steps from the design and evaluation of interventions to decision making.

Three global health challenges – poverty reduction, school measures during the COVID-19 pandemic and obesity prevention – illustrate how taking a complexity perspective changes the way we look at problems, and how we think about and investigate evidence-based solutions.

Standardizing Health AI to Catalyze Innovation in Digital Global Health

Digital health technologies have expanded rapidly and have the potential to address challenges in global health. However, progress in data-driven health solutions, including artificial intelligence (AI), is hampered by the lack of internationally accepted standards and quality assessment to ensure their safe and effective application. The Focus Group “AI for Health” (FG-AI4H) was established as an international standardization initiative by the two UN agencies International Telecommunication Union (ITU) and World Health Organization (WHO). In line with WHO’s Global Digital Health Strategy, the aim of FG-AI4H is to document best practices, standards, and make open-code software available for the development and independent assessment of medical AI solutions. More than 1000 pages of standardization guidance documentation have been produced and the Open Code Initiative is currently evaluated in beta mode. The FG-AI4H is dedicated to identifying, promote, co-develop, and independently assess and evaluate innovations in close collaboration with local partners to ensure AI solutions are conceived with a focus on implementation to make sure they will create a sustainable impact and benefit. As such, the standards and open code AI for health software provided by FG-AI4H can be one promising driver of Digital Global Health innovation.

Session IV – One Health – Infectious Diseases

Thomas C. Mettenleiter ML, Greifswald – Insel Riems

Zoonoses as a Central Topic in Global Health

Bird flu, swine flu, MERS, SARS, Ebola, COVID-19, monkeypox: zoonoses, i.e. infections that are naturally transmitted between animals and humans, are in the lime-light of public attention more than ever. However, zoonoses exist since humans exist. Biologically humans are part of the animal kingdom, which presents as a continuum for infectious agents. The human population soon reaching 8 billion individuals, which are highly mobile, able to cover great distances in very short time, and gather in urban centers, is an ideal host population for infectious agents. Increasing contact between humans and animal reservoirs favours spill-over events of infectious agents, which through adaptation may lead to local epidemics up to potential pandemic spread. The global human burden of disease attributed to zoonoses amounted to ca. 2 million fatalities and 2 billion morbidities annually even before SARS-CoV-2. Thus, zoonoses represent a central topic in global health. The One Health approach was conceived to address these problems holistically by transdisciplinary cooperation. This approach was and is promoted primarily by the veterinary profession. To this end, the concept of *one medicine*, i.e. the cooperation between veterinary and human medicine, was expanded by adding the health of ecosystems (environment). The COVID-19 pandemic, in particular, has made it clear, however, that there is still a lot of potential for improvement in acceptance and implementation of *One Health*. Hereby veterinary medicine is not only paving the way for *One Health* but also serves as mediator and connector between the different disciplines involved.

Parasites: Drivers and Brakemen of the Global-Disease-Burden

Parasitism is a highly successful lifestyle. Approximately 50% of all eukaryotic species are parasites, which live at the expense of their infected hosts. Parasites are very diverse with extremely complex life cycles and vary enormously in size, from a few micrometers to several meters. Infections with worms, called helminths, affect about a quarter of the world's population and are among the neglected tropical diseases. Worm infections, which are the focus of this presentation, are endemic in countries with low hygiene standards and infected people often find themselves in a fatal cycle of poverty. Parasitic worms can survive for many years in infected people and cause chronic diseases. These infections are not so much associated with mortality, but with marked morbidity, associated with poorer cognitive development and marked immune regulation. Immune regulation in chronic worm infections has several negative effects on health such as on vaccination efficiencies or co-infections. However, immune regulation also shows positive effects by suppressing aberrant exaggerated immune responses such as those seen in allergic reactions or inflammatory bowel disease. Thus, parasitic worm infections, which are highly prevalent in the Global South, are drivers of the disease burden, but at the same time brakemen in the case of misdirected exaggerated immune diseases.

Session IV – One Health – Mobility

Ibrahim Abubakar, London (UK)

Migration and Health: The Defining Issue of our Time?

The intersection of migration and health is a defining issue of our time. This presentation will highlight and discuss key challenges in migration and health including impact on health, current and future issues and health systems and access. First, I will address the direct and indirect physical and mental consequences of migration on health at individual and population levels based on our published systematic review of the literature and more recent data. Specific challenges such as infectious diseases spread and antimicrobial resistance will be addressed. Second, the global migration literature broadly categorises migrants into forcibly and non-forcibly displaced persons; a false dichotomy which nevertheless provides a useful framework for discussion. With a health lens, I will address this dichotomy from a current and future perspective. Recent experience of forcibly displaced persons including the current conflict in the east of Europe will be discussed. Anthropogenic climate change and its impact on migration and health illustrates a current and future challenge. Climate change will undoubtedly drive human population movement and health outcomes in the coming decades. The future of health and humanity will thrive or wither depending on our ability to adapt and respond to this threat, with migration at the very heart of action or inaction. Finally, the place of health systems in achieving universal health coverage (UHC) with unimpeded access to health and healthcare will be discussed. UHC is a recognised right of every individual, an ideal that we all aspire to achieve, and yet among migrants, it is often a luxury and not seen as a right. Health and care workforce breaks or makes health systems. I will address the political and health related implications migration on workforce planning and associated dynamics between migrant sending and receiving countries.

Frauke Kraas ML, Cologne

Urban Health Transformation in Asia

No abstract available.

Venue

The German National Academy of Sciences Leopoldina
Jägerberg 1
06108 Halle (Saale)

Getting to the Leopoldina

From Flughafen Leipzig/Halle airport

by taxi in 30 to 40 minutes (around 50 €) or
by Deutsche Bahn in 15 minutes (trains run hourly)

From Halle's main train station

by taxi in 5 to 10 minutes or
by tram line 7 (to Kröllwitz) alighting Moritzburgring

