

BERZELIUS SYMPOSIUM 105 · 21-22 SEPTEMBER 2022 PLANETARY HEALTH

It is all connected - why saving the planet saves our health.

Referat från symposium av C-G Elinder. Om planetens och vår hälsa – och hur de hänger ihop. Båda hotade! Sammanfattar på engelska då mötet var internationellt.

WEDNESDAY SEPTEMBER 21 2022

Welcome Tobias Alfvén, Chairperson Swedish Society of Medicine. 'We cannot live on a dead planet'. See www.sls.hallbarhetsguide.se

Introduction by moderators Fredrik Moberg, PhD, biologist, and Sofia Hammarstrand, MD, PhD student, Occupational and Environmental Medicine, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Sweden. Quite a lot had happened from 2015 up until today. See paper in Swedish Medical Journal by *Rockstrom and Moberg Läkartidningen 2014,111:CSSC Obalans i globala miljöprocesser påverkar människors hälsa.*

Keynote: *Introduction to Planetary Health* Sam Myers, MD, MPH Harvard, U.S.A Myers is a Principal Research Scientist at the Harvard T.H. Chan School of Public Health and is the founding Director of the Planetary Health Alliance.

Population growth (7 times), per capita GDP (11 times) See Myers SS, *The Lancet 2017;390 (10114)*. Our globe is changing more rapidly than ever! Food grown in a CO₂ enriched food contain less nutrients. Carbohydrate instead of protein in foodstuffs grown in CO₂ enriched. Wild pollinators are crucial for farming, insufficient in many areas. One billion humans rely on local fishing. Displacement of humans is rapidly increasing. Solution! demographic transition, post-combustion energy economy,

Public health = planetary health. Serve as trusted messengers.

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Poverty according to the world bank is income below 1,9 USD per day. Poverty is decreasing worldwide - but inequality increase.

There is no 'magic bullet' what we need to do - we need to realize that there is not just one thing that must be done - but a lot of things.

Healthy ecosystems are a prerequisite for human health Part 1: Perspectives from the Arctic Birgitta Evengård, MD, PhD,

Arctic amplification of global warming, possible four times faster. 4 million lives in the artic. **Global warming at present 1.2 degree C**

Perspectives from Sub-Saharan Africa Helena Nordenstedt, Associate Professor in Global Health, Department of Global Public Health, KI, Stockholm, Sweden countries
How will sub-Sahara be affected, global population peak at 10.5 billion. 1.2 live in sub-Sahara, 2100 there will be 3.4 billion. Elsewhere in the world population rise is much less. A high proportion of the sub-Sahara population live in extreme poverty. This is the major problem - the root.

Disease burden = life lost due to premature death and years/time lost from disability. Disease burden will increase much more in the sub-Saharan than elsewhere. Ebola - reservoir in the fruit bat. Vaccine available now.
Göran Thomson - 'what is the prescription for action.' 'We need global governance'

Loss of biodiversity and metropolitan landscapes – what is the impact on health

Tom Arnbom, associate professor, zoological ecology, World Wildlife Fund, Stockholm, Sweden.

Human and planetary health are intermingled. 'The earth is on fire'. Flooding, extreme weather increasing. Overfishing.

Loss of habitat, over exploitation of species, invasive species, and ...

Biodiversity index is going down dramatically worldwide, worst in South America. 1200 species of bats. High metabolism and body temperature. Civets are caught, kept in small cages, eaten by humans, and sometimes spread infectious diseases. We can learn from the rapidly changing environment in the artic.

Climate change and heat related mortality – also in Sweden

Bertil Forsberg, professor of environmental medicine, Umeå, Sweden Heatwaves effect on mortality. Possibly the deadliest weather-related events. The European heatwave 2003 gave rise to > 70,000 excess deaths. A lot of other factors than heat effect mortality, eg population density, air pollution, educational level, amount of 'green space' etc. Older age, chronic diseases. Low socioeconomic factors, etc increase the individual risk considerably. Rocklöv showed that the previous periods of over mortality decrease the effect - on mortality- of heatwaves.

Climate change and health- from impacts to action

Sir Andy Haines, MD, professor of Environmental Change and Public Health, Centre on Climate Change and Planetary Health, London School of Hygiene & Tropical Medicine, London, UK

Top ten percent of the global population stand for almost 50% of CO2 emissions. Heatwaves cause increased mortality, but also pregnant woman (heart rate), wildfires - with attending human exposure to irritating smoke and inhaled particles etc. Globally food and fruit production will decrease (but not in Sweden) because of climate change. Is 1.5 degr C out of reach now? Unfortunate yeas according to Haines. A dramatic drop in combustion of fossil fuels and coal would save many millions of lives, mainly from decreasing air pollution.

400 giga tons remains to leave the planet at <1.5 temperature increase. Climate litigation. Heat affects mental health, 'heat rage'.

THURSDAY SEPTEMBER 22

Introduction. Approaches and building blocks for sustainable transformation – moving from doomsday to an agenda of opportunities

Johan Kuylenstierna, Director General, Formas Kuylenstierna has worked with international environment and climate issues for the past 30 years. He started his career as a polar researcher, and he is now one of the most well-known climate experts in Sweden.

Working in a global context. The importance of 'scale'.

Anthropocene time period.

Started in the 1950 - nuclear testing.

Humans are operating, active and impacting on a global scale.

Also, the Earth is merely a dot in the universe. The

climate is never stable. During the last 400 thousand years temperatures and CO2 varies considerably from 180 to 280 ppm - now approaching 400 ppm. System understanding crucial. Planetary physiology as complex as the human - nevertheless necessary to understand to act with knowledge. The importance of the story time-line.

Conclusions hasn't really changed regarding climate change, we are now 99% certain, 30 years 97%. We don't really need more research- but actions!

Kuylenstierna much more optimistic now! The Paris meeting made a major change.

It gave a platform. Created a mind-shift. Cost for solar power has dropped by 95%

the last 10 years. We underestimate the possibilities. Companies invest in the future! The visions must be accepted. Don't say 'they are stupid, they don't understand the problem's'.



You have got them understand to get the mind-shift. To make them see the benefits, new work, better health etc.

Lessons from evolution by natural selection: an unprecedented opportunity to use biomimetics to improve planetary health

Peter Stenvinkel, Professor in Nephrology, Dept of Nephrology, CLINTEC, Karolinska Institutet and Karolinska University Hospital, Stockholm, Sweden.

Quote Charles Dickens A Tale of Two Cities. Inflammaging. Low Nrf2 expression is associated inflammation and lifestyle factors. Heat stresses promote inflammation, and thereby chronic diseases. Air pollution as well. Drives diseases of aging. Biomimetics. Can learn us solutions have we can cope climate change and global warming. Upregulation of Nrf2 expression is protective. Prevents oxidative stress. Nrf2 is up regulated by lithium. Broccoli sprout. Eating habits varies enormously on this planet. Global warming decrease biodiversity in the human gut. Food deserts in many areas. Fermented food increase biodiversity in the gut. Carnivores diet increase cancer risk.

The power is on your plate Dr Loken is a global sustainability and food system scientist. His work focuses on feeding everyone on the planet healthy diets within the planetary boundaries. Previously, Loken worked for EAT, where he was a lead author on the EAT-Lancet report on Food, Planet, Health.

In Pakistan recently one third of the area was under water. **Food production stands for 30%** of global greenhouse gas emissions. Argentina has the highest carbon dioxide footprint. **Consumption of meat has to decrease.** Net zero emissions by 2039 needed. Food production and consumption must change. 'The power is on your plate'.

Environmentally sustainable diet linked to health benefits

Anna Stubbendorff, PhD-student at the medical faculty and Agenda 2030 graduate school at Lund University Stubbendorff's work focuses on sustainable nutrition and health effects of sustainable diets.

Realistic dietary shifts towards improved nutrition and sustainability in Sweden – a win-win for human health and the planet

Food production stands for >90% of biodiversity loss. Environmental impact from food mostly come from meat production. Meat and dairy contribute a lot. **Vegan diet reduces most.** 28% of land on the planet is not used by humans. Beef production consumes almost as much water as almonds. Only half of nitrogen fertilizer used by plants, the remains run off causing over nutrition of sea and waters. 94% of global mammal biomass is comprised of livestock. Malmo Diet & Cancer study. EAT lancet recommendation compared with what was reported in a large cohort. Those that adhered most had markedly decreased cancer and cardiovascular morbidity and mortality. Pescatarian diet. We should not be concerned about potato consumption. But potato chips avoided.

- unfortunately, most of the many slides, often with tables, shown was not possible to read!

Schäfer Elinder's work focuses in epidemiological studies of healthy and sustainable dietary habits and physical activity and their upstream determinants in relation to health outcomes as well as multidisciplinary research on the development, implementation and

Liselotte Schäfer Elinder, professor, KI, Stockholm, Sweden

Evaluation of interventions and tools to promote health and prevent obesity and chronic diseases.

Realistic dietary shifts toward improved nutrition and sustainability. How to reach acceptance for change. Human prosperity globally has improved much in the last 70 years. **68% of EU produced cereals are used for poultry and meat production.** Only directly 16% used by humans. Obesity cost in Sweden estimated at 50 billion/year. Livestock productions have to decrease. 6 animals par capita in Holland. About two thirds of the greenhouse emissions from food production in Sweden comes from meat production. Swap animal-based products for vegetable-based products. Read and processed meat worst.

EAT lancet recommend much lower intake of read and processed meat than the current Swedish guidelines. On average protein intake from meat should decrease with three quarters. Lotte has created a sustainable healthy diet and used it on adolescents.

Optimisation. Vegan diet achieves most of course. The OPTIMAT-project.

We are at the chasm! – meaning at a point where major changes in the public views on the food they eat and its impact on the environment and attitudes can be expected.

'Time the are a-changing'

Lunch according to EAT-Lancet recommendations

Planetary Health, Health Equity, and Making Change: The role of community organizing in protecting our planet and health

Garaub Basu, MD, affiliate, department of Global Health & Social Medicine Harvard Medical School and Co-Director, Center for Health Equity Education & Advocacy, Cambridge Health Alliance

Basu is also a leader for climate health organizing fellows program, where they try to create a vibrant educational space and community to develop a cadre of health professionals who are inspired and enabled to develop and advance climate solutions. Basu refered to a case report suffering from MeN, a patient he had met as a primary health care worker. 'Every system is created to get the results is wants'. Climate impact on health. Has a program educating on this. Define who we are working for. 'Power needed to achieve clear goals.' Who are my people and what can I do as a physician to make a change? Civil rights movements. Justice and fairness. Storytelling and emotions are important components in making a change. Present a fellowship for 6 months aiming at power people power campaign oriented towards climate health issues. Examples: tree canopies in Chicago to sustain heat better, decreasing medical waste, etc. This program was free but not payed.

Building Planetary Health Movements Locally to Globally

Teddie Potter, clinical professor, director of planetary health

Creating a movement! Indigenous people know much how to relate to climate and environmental challenges. Minni-Sotan 'the land of sky-tinted water'. Explain how environmental and climate threats matter to the local population. Convince people by explaining how THEY will be affected. 'The life of every child today will be profoundly affected by climate change' We need a fundamental change on how we live so this planet'. Advice - be strategic on movement building. Be inclusive! What should we first, next and so forth? Spectrum of allies, from active allies to active opposition. Do not start by attacking the opponents but focus on the passive allies and neutral. People will not change their path, or habits, until they see a plan that will make this possible. 'Go slow to move fast'

Planetary Health Emergency – How can we act?

Martin Hermann, MD, psychotherapist, president of KLUG, the German alliance for climate change

Explain that our existence is at risk. It's an environmental emergency. We have to move to a new narrative. 3.5 % of a population may make a change!