

MT*b*

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PLANETARY HEALTH

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Unloading the overload

“ALTHOUGH PUBLISHED IN 1993, PLANETARY OVERLOAD COULD HAVE BEEN WRITTEN YESTERDAY. THE STATISTICS MAY BE SOMEWHAT OUTDATED BUT ITS MESSAGE CERTAINLY IS NOT. COULD HUMANS REALLY BECOME ‘AN ENDANGERED SPECIES’?”

Readers of *MTb* may recognise the opening words of my review of McMichael’s *Planetary Health* book, published in the 2019 *Climate Change and Health* edition.^[1,2]

Unfortunately, thirty years later, McMichael’s exploration and analysis of the problems that continue to pose a threat to us and our ecosystems still stand, including “...the health risks and hazards from ozone destruction; the greenhouse related heatwaves and hurricanes; the indirect health consequences of climate change on food production and the spread of infections; the immune suppression by ultraviolet radiation; the erosion of overworked soils; depletion of freshwater, and loss of genetic and biological resources for producing food and medicines. Rapid urban growth poses other health hazards. Population health cannot be sustained without intact ecosystems”. This listing of climate emergencies could indeed have been written yesterday.

Except for the first one: almost forty years ago, in 1985, the world came together to protect the ozone layer.^[3] And it worked. Why for ozone and why not for the other domains? Perhaps they were not loud enough: the voices of the scientists, activists, and concerned citizens. Could it be that people only act when the floods reach their own doorsteps? The heatwaves and hurricanes have reached us, and worldwide people are now dealing with the many faces of climate change affecting livelihood, health, food production, and more.

So, although we were warned we decided not to listen and act. Why didn’t we? Scientific proof was contested or simply disregarded; whistles were blown but not heard. Or could it be that the power of industry and politicians, and our belief in the gospel of ‘growth’ were simply too strong, allowing us to become ‘comfortably numb’?

Not all is bleak though. Encouraging are the actions of civil society – like the massive protest last November the 12th, when tens of thousands of people marched the Amsterdam streets in support of climate justice; the ‘biggest ever’ protest in recent years. Increasingly, there is more clout for renewable energy and sustainable food production, for green acting and thinking. We finally have come to realise that our actions *locally* really have global consequences, and that growth for some comes with a cost for many.

Shaping the future of equitable and sustainable planetary health is the title of the upcoming ECTMIH2023 Congress. We invited the NVTG Working Parties to reflect on how, for them, the principles of climate justice, human rights and equitable, sustainable global health translate into concrete actions in the field they are working in. As you can read, they did not look for the magic bullet or a technical (quick) fix to address present-day global health challenges.

If we’ve learned anything, it’s that quick fixes often fail to address underlying problems, and seldom offer sustainable and satisfactory solutions to complex problems.

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1. Antony J. McMichael (1993), *Planetary Overload: Global Environmental Change and the Health of the Human Species*.
2. <https://www.nvtg.org/bestanden/2019-03-mtb-climate-change-and-health.pdf?cd=i>
3. <https://www.unep.org/news-and-stories/story/rebuilding-ozone-layer-how-world-came-together-ultimate-repair-job>

Opportunities for medical doctors to contribute to planetary health challenges in low-income settings: an example from Mangochi District, Malawi

Planetary Health is an increasingly important concept as humans continue to over-use earth's natural resources, threatening global human health.^[1] Even though high-income countries are responsible for the majority of challenges to planetary health, low- and middle-income countries (LMICs) can also develop solutions to build resilience and decrease their future contribution to global warming.^[2,3] 'Zorg voor Klimaat' (Taking Care of the Climate) is a part of the NTVG (The Netherlands Society for Tropical Medicine and International Health) and aims to inform medical professionals on Planetary Health and the interaction between Global Health and Planetary Health, in order to inspire and encourage medical professionals to take action towards a healthier future for planet and people.^[4] This article illustrates how medical professionals can contribute towards addressing Planetary Health challenges in low-income settings.

Specific strategies proposed to address planetary health issues in low-income settings include investment in projects focused on reforestation, family planning, building resilience among communities, and disaster management.^[3] Moreover, in low-income settings, medical doctors frequently engage in district management and leadership. They can initiate change by forming collaborative networks with sectors like agriculture, forestry and education. This participation allows them to raise awareness and integrate planetary health and environmental sustainability into district health planning.^[1] Global health and tropical medicine (GH&TM) and family medicine (FM) consultants are specifically trained to analyse and address health challenges by using a holistic and systematic approach. They



are also equipped with leadership and educational skills, making them ideal candidates to address planetary health challenges in LMICs.^[5,6] In order to inspire other consultants in LMICs, 'Zorg voor Klimaat' is sharing an example of a collaborative planetary health initiative established by a GH&TM consultant in the Mangochi district in Malawi.

Malawi is a densely populated country in Southern Africa with a population of 21 million people residing in an area approximately three times the size of the Netherlands.^[7] The population of Malawi is experiencing the results of deforestation and climate change first-hand. The last couple of years have shown an increase in cyclones and natural disasters. Due to



the latest cyclone, more than 500 people lost their lives and even more people lost their houses and farms. In addition, health facilities and roads toward health facilities were damaged, resulting in a reduced quality and accessibility of health care. Furthermore, fields were destroyed and fertiliser washed away, contributing to food scarcity and malnutrition.^[8]

Malawi has a fertility rate of 3.9 births per woman, contributing to rapid population growth, resulting in additional pressure on natural resources.^[9] Mangochi District is one of the 28 districts in Malawi with a population of 1.3 million people. Most of the people in Mangochi District depend on farming and fishery. In this district, a series of interventions was initiated that aim to address planetary health challenges.

First, collaboration was sought with the medical educational sector where we successfully advocated adding planetary health to the curriculum for medical doctors in Malawi, using a lesson plan adopted from Blom et al. in order to raise awareness of planetary health issues among future doctors.^[10] Also, planetary health issues were included during ongoing professional development sessions for all hospital cadres, outside the official curriculum in hospital teaching moments.

Another example of initiating change in collaboration with the community at a local level is the development of agroforestry nurseries with youth groups and the district governmental forestry department. These nurseries produce seedlings to replace lost forest areas. Forest areas mitigate the risk of mudslides, thereby reducing the risk of losing accessibility to health facilities. To foster sustainability and cost-efficacy, labour was provided by the community youth themselves, while critical materials to start agroforestry nurseries were provided by external parties. Each nursery is expected to produce at least 3000 tree seedlings annually with a financial investment of about 100 euros per site. The key in these reforestation activities is local awareness and community ownership, which contributes to proper selection of priority areas for reforestation and adds toward protection of planting sites.

Apart from new agroforestry nurseries, other protection activities were initiated by the committees, including activities to prevent goats and cattle from damaging the seedlings by using barriers or otherwise restricting cattle's movement. Similarly, firebreaks, gaps in vegetation used to slow or stop wildfires^[11], were established to prevent damage from widespread bushfires, and patrol

activities were started to track and stop loggers from outside the villages.

In order to reduce the felling of trees for firewood and charcoal production, a collaboration with the agricultural sector was formed to investigate alternative local cooking methods. 'Changu changu stoves' were introduced in the same communities where the agroforestry nurseries were established.^[12] These U-shaped stoves, made from 21 local bricks and mud, can reduce firewood consumption at the village level by sixty percent. These stoves were made locally, maintained by youths, and built for every household in the village. The material cost for one stove is limited to 50 euro cents. The biggest challenge faced was the resistance to change of cooking methods. Therefore, communication skills and collaboration with community leaders were essential.

Another alternative for charcoal was explored. Eco-friendly charcoal briquette production was started in the same communities, to compete with traditionally produced charcoal made from trees within the forest. Several methods have been described to produce eco-friendly briquettes, but for the Mangochi setting, a low-cost method using corn stalks was identified.^[13] Corn is the staple food in Malawi. While the corn cobs are already



used as firewood, stalks are normally burned on the fields. Stalks are very low in nitrogen concentration, making them inefficient for compost, and harvest will diminish if old stalks are left on the field. Partial burning of these stalks in old oil drums makes them suitable as the main component of charcoal briquette. An additional benefit of the production of eco-friendly charcoal briquettes is the income generating potential for the local community, as the briquettes can be sold in town. Both the fire-wood friendly stoves and the eco-friendly charcoal have the potential to reduce the need for logging, which would in turn reduce the risk of mudslides.

Finally, to increase resilience and address food insecurity and malnutrition due to poor harvests, an initiative was launched in collaboration with the agricultural sector and forestry department to promote locally made compost. In Malawi, artificial, subsidised fertiliser is distributed among selected population groups by the government. However, the timing of fertiliser distribution and the amount of fertiliser distributed varies from year to year. This often leads to a suboptimal crop yield, resulting in food insecurity and an upsurge in malnutrition cases. Whereas artificial fertiliser erodes soil quality in the long term, compost prevents soil erosion, conserves

water, and improves soil quality, making the land more resilient to excessive rains and droughts, and reducing the risk of food insecurity and malnutrition.

We also involved the educational sector in all our activities. Local schools were involved in reforestation activities: students were taught about the need for forest protection with firebreaks, cattle control, alternative cooking methods, eco-friendly charcoal, and the process of producing compost. Whenever the academic calendar allowed it, students and youth groups assisted in planting and creating firebreaks.

CONCLUSION

Holistically trained medical health professionals with a focus on global health are better equipped to address the challenges of planetary health issues in the areas they are working in, also in low-income settings. The examples from Malawi illustrate such opportunities for promoting health and access to health facilities, occurring as a result of collaborations of health professionals with agricultural, educational and forestry sectors. Education and awareness, reforestation, and exploring alternative cooking materials can all contribute to solving the planetary health problems we are facing -based on taking a holistic and broader approach to health issues.

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Photos by Arne Beguin

Bundling forces: planetary, sexual and reproductive justice for equitable health for all

The planetary health or climate justice movement shows similarities with the activist movement that for decades has strived to improve sexual and reproductive health and rights (SRHR – see text-box). However, where planetary health is currently ‘hot’ and has a label of urgency, SRHR remains neglected and is even regressing globally. This is evident through a decrease in funding for SRHR programmes and through poor SRHR outcomes, especially among the most marginalised. The most recent United Nations figures show a stagnating global maternal mortality ratio, with maternal deaths even increasing in 17 countries.^[1] In many societies, there is reduced space for sensitive SRHR issues such as abortion, comprehensive sexuality education, and services for LGBTIQ+. How can we reverse these trends? There might be an opportunity in bundling forces.

What is Sexual and Reproductive Health and Rights?

‘Sexual and reproductive health is a state of physical, emotional, mental, and social wellbeing in relation to all aspects of sexuality and reproduction, not merely the absence of disease, dysfunction, or infirmity. Therefore, a positive approach to sexuality and reproduction should recognise the part played by pleasurable sexual relationships, trust, and communication in the promotion of self-esteem and overall wellbeing. All individuals have a right to make decisions governing their bodies and to access services that support that right. Essential sexual and reproductive health services must meet public health and human rights standards, including the “Availability, Accessibility, Acceptability, and Quality” framework of the right to health.’ (Guttman-Lancet integrated definition of SRHR; for the full definition, read ‘Accelerate progress—sexual and reproductive health and rights for all: report of the Guttman-Lancet Commission’ (Lancet, 2018)

The SRHR and planetary health movements show similarities in their discourse grounded in equity and justice, with a focus on human rights, public health, and the intersection with behavioural and social sciences. Both movements address the power imbalances that put the most vulnerable in a position of being threatened by economic, cultural or political dominance of others.

‘Climate Change has a negative impact on almost all SRHR indicators, including maternal health, fertility, the risk of sexual and gender-based violence, as well

as via the disasters that disrupt health systems and access to SRHR services,’ says Anke van der Kwaak from the KIT Royal Tropical Institute, who contributed to the *Women Deliver* report on *the link between climate change and sexual and reproductive health and rights*.^[2] ‘On the other hand, there is growing evidence of how realising SRHR, including the improvement of services and systems, reducing gender inequality, and increasing girls’ and women’s resilience, can be an accelerator for climate action.’

The same intricate link between SRHR and climate change is emphasised by Dr. Ba Sidi Yaya, president of the Association of Private Health Schools of Mali. Together with public and private institutions for higher education in health, this association collaborated on the integration of adolescent and youth reproductive health issues into the basic curriculum of health technicians and senior health technicians in Mali (also known as the FORCE project^[3]). ‘Climate action and SRHR are linked for the simple reason that it concerns everyone and particularly adolescents and young people. It is a guarantee of health for future parents, with healthy children.’ Mali, like other countries in the Sahel, is heavily impacted by climate change with increasing droughts, floods and crop pests, which risk further aggravating poor SRHR outcomes due to poor access to services and the undermining of women’s economic and social independence.^[4]

It is clear that, if we are to tackle the urgent and linked global problems of climate change and SRHR-inequity, healthcare professionals must have appropriate knowledge and skills for both. In the biomedical ‘Western’ tradition, healthcare has long prioritised individual clinical care at the expense of equally important public health and wider health system thinking. As global health professionals we have a role to play here.

SHUTTERSTOCK



‘Health care professionals are key stakeholders in improving health and we have the opportunity and often also the power or credibility to make a difference,’ says Goknur Topcu, a young gynaecologist and president of the World Association of Trainees in Gynaecology and Obstetrics (WATOG). WATOG, together with the International Federation of Gynaecology and Obstetrics (FIGO) and the International Federation of Medical Students Associations (IFMSA), worked on an international joint statement of support and model curriculum for the inclusion of SRHR and wellbeing education into the core structures of medical curricula.^[5] ‘It’s strange that, as a healthcare professional for women’s and children’s health, I only started to learn about SRHR, and now also planetary health, once I began to engage in the international field. In fact, these are the fundamentals for rights-based and holistic health in our communities.’ During the recent FIGO-conference in Paris, also attended by a large delegation of the *NVTG Working Party for International Safe Motherhood and Reproductive Health*, both SRHR and planetary health as well as their inclusion in medical curricula, were - although unfortunately still not centre-stage - emerging themes.

How do we ensure that current and future generations of healthcare professionals commit to improving both SRHR and planetary health? The planetary health movement can build on what the SRHR

movement has been advocating, and their intersection offers a crucial opportunity for the medical community to tackle both.

Therefore, skills and knowledge should be integrated in the curricula of medical students and early career professionals. ‘We need to understand the determinants and different complex factors that impact our public, sexual and reproductive health and rights at the global, regional and national level,’ says Goknur, representing a voice of new healthcare professionals. This even requires broader integration, beyond planetary health and SRHR in a narrow sense. On the agenda should be planetary health, social sciences, determinants of health, human rights, medical ethics, sexual rights, reproductive freedom and gender equity.

It might be a lot to tackle all at once. But, if we truly are to understand this intersection and, moreover, if we as healthcare professionals commit ourselves to social justice and equitable health for all human beings and the planet, we do have a chance for a (better) future.

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Lessons on clinical collaborations in rural India

If asked what has been the most valuable asset from my clinical experiences in a rural Indian hospital, I unequivocally state: my Indian colleagues. I say this with conviction because of all the lessons I learned from them, knowledge I did not know I would need.

In January 2023, I joined the clinical workforce of Makunda Christian Leprosy and General Hospital. This position was part of my postgraduate specialisation as MD Global Health and Tropical Medicine. Makunda Hospital is located in a remote region of North-East India, Assam, in the district Karimganj, which borders the states Tripura and Mizoram. In this North-East region, most people rely on farming or working at the large neighbouring tea estates for their income. The economy is precarious, resulting in high levels of general impoverishment and gaps in health care coverage.

Makunda Hospital was established to address this gap. The hospital is a charitable mission hospital that provides 24/7 secondary level care. Its mission is to provide high-quality specialised care which is affordable for all. If a patient is not able to afford the hospital bill, Makunda analyses the patient's financial situation and can subsequently provide financial assistance by postponing payment or via charity from hospital income and church donations.

Makunda has the following departments: obstetrics and gynaecology, paediatrics with a Neonatal Intensive Care Unit (NICU), general medicine with an Intensive Care Unit, surgery (general, orthopaedic and paediatric) and dentistry. The services are supported by a 24/7 functioning pharmacy, laboratory, blood storage centre, and radiology department with a CT-scanner. In daytime, patients can also access the departments of neurophysiology, physiotherapy, optometry, and nutrition.

In my first three months at Makunda Hospital I worked in the department of



obstetrics and gynaecology. My second three months were spent in the surgical department. In both departments, inpatient and outpatient consultations were combined with performing surgeries. Additionally, on-call shifts were organised around one doctor holding 24-hour coverage for obstetrics and gynaecology and one doctor for the remaining departments.

During the six months of the internship, my colleagues showed me how to treat and care for patients in Makunda. They shared knowledge about the challenges that I would come to face and showed me how to cope with setbacks. I learned new techniques and tricks for more sustainable use of and ways to save materials during surgery. These were valuable lessons in the economics of surgical care, specifically related to the availability and costs of supplies and medications, and alternatives in case something was out of stock. I learned sustainable ways of waste management—i.e., what was rubbish and what could be reused, like making rubber bands from used gloves to tie surgical equipment together. I was encouraged to be creative and to think of using less expensive materials for high-end purposes if there was need for them,

such as combining a Foley catheter and condom instead of using a Bakri balloon during a postpartum haemorrhage, using gloves as drain bags, and building a three-chamber chest tube drainage system from operation theatre suction pots.

I also learned that these solutions reflect something deeper. The people of Makunda Hospital genuinely care for each other. My colleagues at the hospital seemed to work with great motivation so that their patients could receive the best care possible, which also means investing in the wellbeing and knowledge of your colleagues. My colleagues laughed and cried with me, invited me for dinner, or brought me food to the hospital when I was working late. They included me so that I truly felt like a part of their community. By being part of this community, I came to know the social background and the different tribes of my colleagues and of my patients. That way, I learned about the importance of understanding a patient's background—truly knowing your patients and their environment enables you to provide better patient-centred care.

Caring for people and planet is a subject that is gaining popularity in high-income

medical environments. Yet in fact, it is the norm of clinical care in limited resource settings. In Makunda, I saw colleagues providing the highest possible quality of care, while using as little resources as possible. Without initially realising it, I was taught lessons in providing sustainable clinical care. For instance, as I was being lectured by a surgeon in Makunda for using too much gel while performing an ultrasound, I remembered one of my first Dutch lessons in sonography was to always use a lot of gel, to prevent running out over the course of the examination. I recall how Dutch consultants warned me that when I would be working abroad in the future, I would have to be more economical with using sutures and other materials due to the shortages there.

The difference in usage and waste in the medical sector in higher-resource settings and those less wealthy is vast. Could this be rooted in an assumption that in settings where everything is available, there is no need to be careful with what and how much we use? What would happen if we did care as much about these costs and the impact of our waste on our local ecology and economy?

CARING FOR PEOPLE AND PLANET IS A SUBJECT THAT IS GAINING POPULARITY IN HIGH-INCOME MEDICAL ENVIRONMENTS. YET IN FACT, IT IS THE NORM OF CLINICAL CARE IN LIMITED RESOURCE SETTINGS. IN MAKUNDA, I SAW COLLEAGUES PROVIDING THE HIGHEST POSSIBLE QUALITY OF CARE, WHILE USING AS LITTLE RESOURCES AS POSSIBLE.

Ultimately, I am grateful to my colleagues at Makunda for how they guided me in caring for patients in a holistic way and how their practices helped me reevaluate the processes of providing medical care. I have experienced the development of becoming critically aware in practising medicine when the need arises. As the planetary crisis unfolds itself, I wish that we, in practising medicine in the Netherlands, will be able to finally reduce our waste and footprint, while still being able to provide high-quality care. I want to encourage everyone to be open and allow themselves to draw inspiration from colleagues working in environments with shortages. Their deeper understanding of caring for the world and its people, and their expertise and efficiency in working economically and sustainably, can guide us where we need to go.

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A changing climate: the increased need for international knowledge exchange in approaches to health



The platform Family Medicine and International Health (Werkgroep Huisartsgeneeskunde en Internationale Gezondheidszorg, WHIG) was founded in 1995 by a group of Dutch Family Physicians with international health care- and research experience, and initially focused on promoting Family Medicine in Low- and Middle-Income countries (LMICs) through collaborations with Universities in Kenya, Malawi and Rwanda. In the Netherlands, the working group helped develop guidelines on Travel Medicine and started a yearly symposium to share knowledge on this topic with Dutch health professionals.

More than 25 years later, this dual focus on the development of Family Medicine training abroad and knowledge exchange on international health in the Netherlands is ever so important. The growing array of complex societal, economic and environmental problems has not only increased the need for strong primary and preventative care training in LMICs; it also increasingly requires Dutch health professionals to learn from international experts as we are confronted with changing health needs due to a more diverse population, workforce shortages, and growing inequity on various levels. Climatic changes will further fuel this need in the years to come. This essay aims to illustrate this need for international knowledge sharing in primary health care approaches through the lens of WHIG's activities.

ENVIRONMENTAL CHANGES AND THE NEED FOR RESILIENT COMMUNITIES TO COMBAT CHRONIC DISEASE: WHAT CAN WE LEARN FROM THE AFRICAN EXAMPLE?

From its inception, members of the WHIG have been involved in Family Medicine training and research in Kenya, where

they have witnessed a changing environment with increased urbanisation and a rise in chronic diseases as a result. In the

last two decades, cardiovascular disease and diabetes were rampant in urban slums due to unhealthy circumstances and weak public health regulations. This raised the need for population-based and preventative approaches to healthcare delivery and collaboration with community health workers to help build resilient communities. Innovative approaches in Kenya subsequently became increasingly relevant for the Netherlands. This can be illustrated by the work of WHIG's member Steven van de Vijver who implemented a large cardiovascular prevention project in urban Kenyan slums focusing on increasing awareness, promoting access to screening and treatment, and improving long-term adherence to prescribed medications.^[1] He later adapted it to the local context of Amsterdam Zuid Oost, the Netherlands, where similar health problems existed under vulnerable groups. It became clear that despite the differences in poverty levels, marginalised groups in high-income countries are highly comparable with marginalised people living in African urban slums, as the combination of unhealthy lifestyles, psychological distress, and lack of trust in healthcare providers makes them equally prone to non-communicable diseases. This example shows us how we can learn from health care initiatives in LMICs and use them, in an adapted form, in high-income countries, a process called 'reverse innovation'.^[2]

Recent climatic changes affecting mostly poor rural areas in Kenya further contribute to inequity and urbanisation as it is becoming extremely difficult to live from farming. Kenyan family medicine residents, guided by some of WHIG's members, showed that rainfall in the last four years (2018-2021) had become increasingly unpredictable in Kilifi, a

coastal county in Kenya, resulting in increased livestock diseases, reduced yield from farmland, and decreased food variety. Community members also reported that they heavily relied on unhealthy and cheap foods available in shops during prolonged droughts, as their kitchen gardens had dried up.^[3] From this data, it is evident that, similar to the urban slums, a rise in non-communicable diseases in areas affected by climate change, is lurking. To help make the community more resilient to future weather conditions, a collaborative approach was set up whereby men and women in the community came up with ideas to collaborate in the provision of food and irrigation. Moreover, practical nutrition education was provided by community health volunteers and family medicine residents (de Meijer, in process of publication).

Due to global warming, community approaches are becoming increasingly important for countries such as the Netherlands. Although Africa is hit disproportionately hard by climatic changes, it is likely that high-income countries will also suffer from its consequences. Therefore, we should learn from community engagement approaches in Kenya in order to help communities in the Netherlands become more resilient to future changes. The Netherlands is burdened by health workforce shortages and a rise in chronic illnesses leading to an infarcted healthcare system. Recent initiatives help communities to maintain better health, while significantly reducing healthcare costs. An example is a project by David Koetsier, who formerly worked in Zambia where he learned about the importance of integrating public and clinical health approaches; in Amsterdam he set up the kitchen garden project. To stimulate more of these community approaches, WHIG has recently created an opportunity for Dutch family medicine residents to learn from the Kenyan example in an exchange project with the

Prolonged droughts leading to drying up of kitchen gardens, Kilifi County, Kenya.



PHOTO BY FLEUR DE MEIJER

Aga Khan University in Kenya (for more information, see <https://whig.nl/stages-copc-in-kenya/>).

ENVIRONMENTAL CHANGES AND FORCED MIGRATION LEADING TO A DIFFERENT SPECTRUM OF HEALTH PROBLEMS, ESPECIALLY IN VULNERABLE GROUPS

One of the most devastating consequences of climate change is the displacement of communities who are forced to flee their homes due to extremely high temperatures, flooding or relentless drought. Displaced people often have different health needs such as mental health issues due to forced migration or language and cultural barriers that are often poorly understood by Dutch health professionals. In fact, The Lancet recently published a report stating that in high income countries such as the Netherlands, a disproportionate care law persists, whereby socially disadvantaged people such as migrants, receive more healthcare than average, but of worse quality and insufficient to meet their additional needs.^[4]

Many of WHIGs members have travelled to refugee camps in the last decade to help provide primary care in camps that have seen growing numbers over the last years. Their experiences in those camps have helped them to provide better care to asylum seekers and undocumented migrants in the Netherlands. This different spectrum of health problems will probably only increase and therefore have a big influence on our health system. The knowledge and experience of doctors having worked internationally and having been involved in setting-up, maintaining and improving health systems, is therefore of high value. In line with this, WHIG in collaboration with the Knowledge Centre Global Health, recently launched a series of free webinars, accredited for both doctors and nurses, on inclusive global health care topics. Speakers of different backgrounds and nationalities were invited to

share their insights on the following topics: Health care for asylum seekers and undocumented people, Community Oriented Primary Care, Tropical

Infectious Diseases in Europe and Dermatology of the dark skin. Earlier this year, WHIG's symposium on Traits, Trauma & Travel invited experts to speak about racial disparities in Dutch healthcare provision and mental problems in refugees.

DIGITAL SOLUTIONS FOR INTERNATIONAL KNOWLEDGE EXCHANGE

Another potential way to improve knowledge exchange and access to health care is via digital health innovations. A multidisciplinary network on Digital Health for All was recently started in Amsterdam with the aim of increasing Universal Health Coverage via digital health.^[5] A pilot tool based on digital health records for refugees will be developed and implemented within this network by the end of 2023. Health care for refugees and undocumented migrants is often lacking in continuity and quality, partly due to missing data and information on access and rights to health care. Several WHIG doctors involved in care for migrants and refugees will play an important role in the implementation of the above tool in Amsterdam, and hopefully at a later stage in the rest of the country and continent. Besides offering primary health care for displaced people via mobile health records, digital health tools could also support health care workers working remotely via digital tools like Siilo (a secure medical messenger platform designed for healthcare professionals). In addition, WHIG members have been supporting Family Medicine training and research development online through WHIG's partner Primafamed (for more information see <https://primafamed.sun.ac.za/education-and-training/>) and by offering online writing courses to Kenyan students. This is important as the

African continent contributes less than 2.6% of the global scientific output while carrying about 25% of the global disease and climate change burden.^[6] Online training can help residents to become better authors and increase research outputs from the African continent.^[7]

SUMMARY

The challenges and healthcare developments resulting from environmental changes as discussed above make it clear that we can also benefit from healthcare initiatives abroad and from physicians with international healthcare experience. The WHIG has a vital future role in helping develop the knowledge, skills, attitudes and values that enable Family Physicians to help meet current and future global healthcare needs.

Interested in hearing more about WHIG's activities or becoming a member? Visit <https://whig.nl> or <https://www.linkedin.com/company/whig>.



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Climate change & Malnutrition

Climate change is becoming a more and more pressing issue for global health. Increasing greenhouse gas emissions contribute to global warming, extreme weather emergencies and natural disasters like droughts, earthquakes, hurricanes and floods. ^[1,2] In addition to the direct health impact of these disasters, the indirect effects on air and water quality, crop failure, lack of shelter and transmission of infectious diseases also endanger human health worldwide. ^[1,2,3] Common health issues caused and worsened by the above mentioned are for instance malaria, diarrhoeal disease, heat stress and malnutrition; it is expected by the World Health Organization (WHO) that these alone will cause an extra 250.000 annual deaths between 2030 and 2050. ^[3] Next to these, mental health problems, cardiovascular and respiratory diseases are common threats to human health, and are also increasing following climate change.

^[2] Low-income countries, although contributing least to global emissions, endure the worst health impacts. ^[3]

MALNUTRITION

The WHO and the Intergovernmental Panel on Climate Change estimate that malnutrition will be the largest contributor to climate change related morbidity and mortality. ^[1] Malnutrition indicates all problems with nutrient intake, ranging from deficiencies and excesses to imbalance that can cause undernutrition as well as obesity and other diet related diseases. Undernutrition can present as wasting, stunting, underweight or micronutrient deficiencies. ^[4,5] Malnutrition can

have long term effects on a person's life, therefore early treatment is necessary.

The WHO defines severe acute malnutrition (SAM) as ^[6]

1. Severe wasting, meaning a weight for height with a Z-score¹ of <-3SD or a mid-upper arm circumference of <115mm².

Or

2. Bilateral oedema of the lower extremities (due to malnutrition), this can be with or without severe wasting.

For the treatment of SAM there is no distinction made for Kwashiorkor or Marasmus since the treatment of both conditions is almost similar. ^[6] Children with complicated SAM, meaning loss of appetite or any medical complications (including oedema), require in-hospital treatment. With severe social problems an in-hospital treatment should be considered. Children that are stunted (often the irreversible result of chronic undernutrition) may be underweight but are not necessarily severely wasted (often the result of more recent severe weight loss). These children, although chronically malnourished, do not need in-hospital treatment, unless severely ill. ^[4,6]



Figure 1, Marasmus ^[6]



Figure 2, Kwashiorkor ^[6]

Definitions

Wasting: Low weight for height ^[4]

Stunting: Low height for age ^[4]

Underweight: Low weight for age ^[4]

Marasmus: Severe malnutrition with wasting of adipose tissue and muscles. (Fig 1) ^[6]

Kwashiorkor: Severe malnutrition with bilateral (lower extremity) oedema. (Fig 2) ^[6]

THE IN-HOSPITAL TREATMENT OF SAM IN CHILDREN - A SHORT RECAP

This is a short recap of the (WHO) guidelines concerning the treatment of severe acute malnutrition. All treatment information (including drug dosage) is available (free of charge) through the described sources.

The treatment of SAM is divided into different stages.

1. Initial triage, assessment and treatment (0-12 hours) ^[6,8]

Triage and treat emergency signs according to ETAT standards.

- Treat acute airway and breathing problems.
 - › Airway manoeuvres, oxygen.
 - › Treat shock (hypovolemia, anaemia, sepsis) in malnutrition.
 - › DRL5/DNS5³, whole blood, ReSoMal⁴, (antibiotics, antimalarials).
 - › Treat coma and convulsions.
 - › D10⁵, diazepam, phenobarbital.
 - › Treat dehydration in malnutrition.
 - › ReSoMal, later alternated with Formula-75 (F75).
- Further investigations include: ^[6,9]
 - › Assessment of the patient's current danger signs
 - › For instance: appetite, diarrhoea, vomiting, coughing, fever.
 - › Assessment of the patient's history
 - › For instance: diet, recent intake, breastfeeding, vaccinations, social circumstances, measles, tuberculosis (TB), HIV.
 - › Full physical examination
 - › Pay special attention to: oedema, vit A deficiency, infection, oral/skin lesions.
 - › If possible; lab investigation
 - › Glucose, full blood count, urine analysis, screen for infection (HIV, TB, Malaria).

When initial assessment and treatment is done, move on to stabilisation of the patient.

2. Stabilisation (2-6 days) ^[6,9]

The initial refeeding phase should restore metabolism and should be taken slowly.

- Start with F75 according to WHO schedule; 130ml/kg/day.
 - › Start on 2 hourly feeds, if the patient maintains this (<5 vomiting/diarrhoea, good appetite) expand to 3 or 4 hourly feeds.
 - › Breastfeeding can be continued in addition to the refeeding schedule.
 - › Insert nasogastric tube if the intake is <80% (two consecutive feeds).
- Initial refeeding can cause vomiting and/or diarrhoea.
 - › Replenish continuous losses with ReSoMal.
 - › In recurrent vomiting/diarrhoea it is possible to alternate F75 with ReSoMal.
- Age <6 months:
 - › Give expressed breast milk, infant formula, infant F75 or diluted Formula-100 (F100) according to WHO standards.
- In patients with severe oedema:
 - › Start F75 according to WHO schedule; 100ml/kg/day.

- Always beware of hypoglycaemia, hypothermia, dehydration, congestive heart failure and infections and treat accordingly.
- All patients with malnutrition have a shortage of electrolytes (sodium, potassium) and micronutrients (vitamin A, zinc, copper, folic acid).
 - › These ingredients are implemented in F75, F100 and RUTF⁶ and are not necessary to replenish.
 - › Only when signs of vitamin A deficiency (corneal ulceration, history of measles) give extra vitamin A on day 1, 2, and 14.
 - › Only start iron supplementation after stabilisation phase, and not when patient is on RUTF.
 - › Suppletion of electrolytes and micronutrients is necessary only when a patient is not on premixed food⁷.
- Limited to no weight gain can be normal during stabilisation.
- If a patient fails to respond to treatment:
 - › Reassess, reconsider the diagnosis and consult a senior.

Improvement (return of appetite, no hypoglycaemic events, reduction/disappearance of oedema) normally shows within a few days. The patient can then move on to transition and rehabilitation.

3. Transition (2-3 days) and Rehabilitation (indefinitely) ^[6]

Entails 'catch up growth' after a period of malnutrition.

- Start with a gradual transition from F75 to RUTF (or F100).
 - › RUTF dosage of 175-200kcal/kg/day.
 - › Start with 8 meals, decreasing to 5-6 meals per day.
 - › Complement with F75 if the full amount is not eaten.
 - › When consuming <50% RUTF in 12 hours, go back to F75. Retry in 1-2 days.
- When age <6 months return to breastfeeding (complemented with formula if necessary).
- Stimulate physical activity, tender, love and care.
- Discharge
 - › When the patient is fully transitioned to RUTF, when medical complications (including oedema) have resolved and appetite has returned.
 - › Restart family meals in addition to breastfeeding and RUTF.
 - › Treat empirically for parasitic worm infections.
 - › Refer the patient to outpatient rehabilitation for weekly review and weight measurement.

When a patient in outpatient rehabilitation shows weight loss, poor weight gain or medical complications reassess and readmit to hospital if necessary.

LETTERS FROM THE FIELD

NEED FOR ACTION

Climate change contributes to a higher number of malnourished children. Given the direct and long-term consequences of malnutrition on human health, there is a need for urgent action. The WHO responds to these challenges by for instance: promoting actions to reduce carbon emissions, building climate and environmentally sustainable health systems, trying to protect human health from the impact of climate change, creating awareness, partnering with health agencies, collecting health data and collaboration and support of health ministries worldwide. Together, these measures try to create climate resilient and low carbon emission health systems. [3]

Interested? Find more information on the website www.who.int/health-topics/climate-change

¹ The severity of malnutrition can be classified by looking at the 'Z-score'. This system scores the number of standard deviations from the median value to classify the amount of wasting, stunting or underweight as severe, moderate or mild [7]

² Usable for an age above 6 months

³ Dextrose 5% + ringer's lactate/normal saline

⁴ Rehydration Solution in Malnutrition

⁵ Dextrose 10%

⁶ Ready-to-Use Therapeutic Food

⁷ Recipes for F75, F100, catch-up meals and ReSoMal available through



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European Conference on Global Health (ECTMIH 2023)

The European Conference on Global Health (ECTMIH) in Utrecht this year revolved around the theme of planetary health.

To further foster knowledge exchange on this topic, the Knowledge Centre Global health is developing a repository web page, on which sources, studies, and linked organisations can be found. This list is growing: if you have any ideas or suggestions for us, please reach out via info@kcgh.nl.



In defence of planetary health. How to mobilise the individual health professional?

The urgency of understanding Planetary Health has been established firmly over the past years. Many publications in medical and academic papers as well as declarations and conventions of international organizations such as the United Nations and the World Medical Association (WMA) underline this urgency.

SYNERGY OF CONCEPTS

The concepts of Planetary Health and the Right to Health are closely linked. Both concepts are deeply rooted in International Human Rights Law and International Codes of Conduct of Health Professionals.

The International Federation of Health and Human Rights Organizations (IFHHRO) has always focused on the question what role individual and organised health professionals can – or rather should – play in the defence and promotion of the Right to Health.

Why this focus? Because health professionals are often the first (and at times the only ones) who witness violations of the Right to Health and other human rights violations.

It is IFHHRO's conviction that health professionals – individually and organised – should be empowered and facilitated in their efforts to defend and implement the Right to Health and Planetary Health, and that they should be included in the global struggle for the Right to Health and Planetary Health.

PLANETARY HEALTH

In 2015, the Rockefeller Foundation – Lancet Commission on planetary health published the report *Safeguarding human health in the Anthropocene epoch*, which can be summarised as follows.

'Far-reaching changes to the structure and function of the Earth's natural systems represent a growing threat to human health. As a Commission, we are deeply concerned that the explanation is so straightforward and sobering: we have been mortgaging the health of future generations to realise economic and development gains in the present. By unsustainably exploiting nature's resources, human civilization has flourished but now risks substantial health effects from the degradation of nature's life support systems in the future. Health effects from changes to the environment, including climate change, ocean acidification, land degradation, water scarcity, overexploitation of fisheries, and biodiversity loss, pose serious



challenges to the global health gains of the past several decades and are likely to become increasingly dominant during the second half of this century and beyond. These striking trends are driven by highly inequitable, inefficient, and unsustainable patterns of resource consumption and technological development, together with population growth.'

The report identifies 'three categories of challenges that have to be addressed to maintain and enhance human health in the face of increasingly harmful environmental trends. First, conceptual and empathy failures such as an over-reliance on gross domestic product as a measure of human progress and the failure to account for future health and environmental harms in comparison to present-day gains. Second, knowledge failures such as the failure to address social and environmental drivers of ill health and a historical scarcity of transdisciplinary research and funding. Third, implementation failures such as how governments and institutions delay recognition of and responses to threats, especially when faced with uncertainties.' The report asserts that 'Planetary health

offers an unprecedented opportunity for advocacy of global and national reforms of taxes and subsidies for many sectors of the economy, including energy, agriculture, water, fisheries, and health.

Several essential steps need to be taken to transform the economy to support planetary health. These steps include:

- a reduction of waste through the creation of products that are more durable and require less energy and materials to manufacture than those often produced at present;
- the incentivisation of recycling, reuse, and repair;
- the substitution of hazardous materials with safer alternatives.'

The same year, 2015, saw the birth of The Paris Agreement, which asserts that 'climate change is a global emergency that goes beyond national borders. It is an issue that requires international cooperation and coordinated solutions at all levels. The Agreement sets long-term goals to guide all nations:

- substantially reduce global greenhouse gas emissions to limit the global temperature increase in this century to 2 degrees Celsius while pursuing efforts to limit the increase even further to 1.5 degrees;
- review countries' commitments every five years;
- provide financing to developing countries to mitigate climate change, strengthen resilience and enhance abilities to adapt to climate impacts.

The Agreement is a legally binding international treaty.^[2]

As the world's largest health profession organisation, the WMA claims that 'there is now persuasive evidence demonstrating the numerous health risks posed by climate change, which threatens populations of both low- and high-income countries. These health effects include more frequent heatwaves, flooding and extreme weather events. Less direct

impacts include worsening food security, malnutrition and population displacement. Addressing climate change is also considered to be an opportunity to improve global health in the 21st century due to the significant health co-benefits of low-carbon solutions.’^[3] Dr. Miguel R. Jorge, president of the WMA, said in 2020 that ‘health professionals are at the frontlines of this emergency, and we are seeing the immense loss of lives because of acting too late. We know now, more than ever, that healthy lives depend on a healthy planet. As we walk on the road to recovery, we cannot ignore that we need to build a system in place that will protect us from further damage. That is why it is important that governments take into consideration public health when they are discussing recovery packages. We need a comprehensive approach, a healthy and green recovery, and we need it now.’^[3]

It was not the first time that the UN voiced its concern about climate change, but in 2022 the UN adopted a resolution with a very precise agenda. This UN General Assembly Resolution A/76/L.75 ‘(1) Recognizes the right to a clean, healthy and sustainable environment as a human right; (2) Notes that the right to a clean, healthy and sustainable environment is related to other rights and existing international law; (3) Affirms that the promotion of the human right to a clean, healthy and sustainable environment requires the full implementation of the multilateral environmental agreements under the principles of international environmental law; and (4) Calls upon States, international organisations, business enterprises and other relevant stakeholders to adopt policies, to enhance international cooperation, strengthen capacity-building and continue to share good practices in order to scale up efforts to ensure a clean, healthy and sustainable environment for all who recognized “the right to a clean, healthy and sustainable environment as a human right”.’^[4]

THE RIGHT TO HEALTH

Many notions of the concept of Planetary Health are reflected in the Right to the Highest Attainable Standard of Health, shortened as the Right to Health. Referring to and expanding on Art 12 of the UN International Covenant on

Economic, Social and Cultural Rights of 1966, the UN Committee on Social, Economic and Cultural Rights published General Comment 14 in 2000. This General Comment 14 has become one of the basic elements and reference points of professionals’ policies and behaviour.

General Comment 14 is not only very clear on the requirements of health care (the availability, accessibility, acceptability and quality), but also specifies the underlying conditions of health, such as:

- ‘to ensure access to the minimum essential food which is nutritionally adequate and safe;
- to ensure freedom from hunger for everyone, to ensure access to basic shelter, housing and sanitation, and an adequate supply of safe and potable water;
- to provide essential drugs, as from time to time defined under the WHO Action Program on Essential Drugs;
- to ensure equitable distribution of all health facilities, goods and services’^[5].

The General Comment also explains that there is always an accountable party (body or agent), usually a national or regional government, which carries responsibility for the execution of the Right to Health. The paragraph on participation ensures the inclusion of the ‘target’ persons or groups (patients), and their right to co-decide goals and outcomes of health programs.

The understanding that health is not exclusively related to (the quality and accessibility of) health care, but inextricably to the underlying conditions too, was and is a groundbreaking understanding for all organisations and individuals, including health professionals.

In the preparation of General Comment 14, the IFHHRO Medical Human Rights Network was one of the organisations, consulted by the Committee on Economic, Social and Cultural Rights, in a three days conference in London in 1999.

The IFHHRO has cooperated intensively with the Special Rapporteurs on the Right to Health, a function created in 2002 by the Commission of Human Rights of the United Nations. Many general and thematic reports of the subsequent

Rapporteurs have highlighted different aspects of the Right to Health.

PLANETARY HEALTH AND THE INDIVIDUAL HEALTH PROFESSIONAL

I was personally confronted with systematic violations of the Right to Health when I worked twice as a volunteer physician in the notorious refugee camp Moria on Lesbos (Greece) in 2019. Almost all rights listed in the Right to Health were violated, both on health care and the underlying conditions of health. I wrote a limited assessment report that also noted the impotence of institutions and accountable parties taking responsibility and moving towards improvement.^[6]

The concept of Planetary Health is of utmost importance to individuals and society at large, including in particular health professionals. The challenge however is how to include and mobilise the individual health professional in the defence (and promotion) of the Right to Health and Planetary Health.

The reality of health professionals is that their agenda is full, and carries priorities of daily clinical work, decisions and scientific obligations. The real question is how to put the Right to Health and Planetary Health in a relevant place on the agenda of the individual health professional.

The IFHHRO, as an organisation of and for health professionals, recognizes this problem, and has been developing programs and projects to include individual health professionals in the defence of the Right to Health and Planetary Health. The IFHHRO wants to ‘help healthcare providers who want to apply the right to health for the benefit of their patients and the communities in which they live. IFHHRO is currently developing an easy-to-use assessment tool, the Right to Health Toolkit. Most countries in the world have committed themselves to the delivery of adequate healthcare. Agreements with regard to this commitment are laid down in international laws and regulations and summarised in the so-called right to health. The right to health states among others that healthcare must be available, accessible and affordable for every person and must be of good quality. However, many health workers do

not know how these principles pertain to their patients' rights. The Right to Health Toolkit could be used by any healthcare provider to explore whether or not his or her own work situation meets the internationally agreed standards regarding the right to health on essential points'.^[7]

In a next phase, the IFHHRO 'will approach potential partners and ask them what they think about the draft tool and if they would be interested in helping us bring the toolkit to the attention of health providers worldwide. We will also conduct a field test of the tool in various healthcare institutions in the Netherlands and abroad, in combination with an effect study in collaboration with a university or scientific institution.'^[7]

CONCLUSION

The IFHHRO believes in the importance of the Right to Health and Planetary Health, and wishes to work and cooperate on implementing these rights.

The IFHHRO's ambition is to include health professionals in this task, since they have a key position in recognising violations of the Right to Health. Education, networking, and providing an assessment toolkit are the main instruments in our ambition to make Planetary Health and the Right to Health a reality. The IFHHRO therefore welcomes cooperation and the exchange of ideas.



Adriaan van Es, MD, secretary to the IFHHRO Medical Human Rights Network, 25 October 2023

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Ophthalmology and the climate crisis

... we should take responsibility

Intravitreal injections (IVIs) have revolutionised ophthalmology. With ever-increasing numbers of injections and a shift from reusable to disposable instruments, waste production has also soared.

Initially, I accepted the disposable custom-pack with plastic bowls, speculum, cotton buds and drape. But after looking at the overflowing waste bins following an afternoon of injections, I became frustrated.

I critically reviewed the literature on IVI procedures and concluded that we could do without drapes and forceps. In consultation with the supplier, we omitted all plastic trays and bowls and replaced the polypropylene cover sheet with a crepe-paper wrap (see Figure 1). This allowed for a much smaller plastic package. This allowed us to reduce waste from 135.5 to 66.5 g per IVI and costs by 20%.

In combination with the recycling of paper and clean plastics, the carbon footprint of a single IVI decreased from 0.68 kg CO₂ to 0.17 kg CO₂. Performing 50 injections a day, the daily savings equate to 25.5 kg CO₂, the equivalent of driving 116 km in a car.

This reduced IVI set has been adopted by the Dutch Ophthalmological Society and is being implemented in more and more hospitals. With over 400,000 annual injections nationwide [1] this small revision represents a large step forward in sustainable ophthalmology.

A call to action

In September 2021, over 200 scientific medical journals simultaneously published a “Call for emergency action to limit global temperature increases, restore biodiversity and protect health.” Participating journals ranged from the New England Journal of Medicine to the Croatian Medical Journal and from the Lancet to the Medical Journal of Australia. In this paper, editors call for governments and leaders to act on keeping the global temperature rise below 1.5°C and on restoring nature.

The science is unequivocal: a global increase of 1.5°C above the pre-industrial average and the continued loss of biodiversity risk catastrophic harm to health.^[2] Climate change is already impacting health in a myriad ways, including death and illness from increasingly frequent extreme weather events such as heatwaves, storms and floods, the disruption of food systems, increases in zoonoses and food-, water- and vector-borne diseases, and mental health issues. Furthermore, climate change is undermining many of the social determinants for good health, such as livelihoods, equality and access to healthcare and social support structures. Despite the world’s necessary preoccupation with COVID-19, we cannot wait any longer before taking action and should act now to rapidly reduce greenhouse gas emissions.

WHAT HAVE OPHTHALMOLOGISTS TO DO WITH THIS?

The healthcare sector is a major contributor to greenhouse gas emissions.^[3] It is estimated that healthcare’s climate footprint is equivalent to 4.4% of global net emissions (2 gigatons of CO₂ equivalent). If the health sector were a country, it would be the fifth largest emitter on the planet. So the healthcare system itself contributes to a decline in public health.

This message has been heard by leaders in the field. During the COP26 UN Climate Change Conference in Glasgow, a group of 50 countries, including the UK, the US, Germany and the Netherlands, committed to developing climate-resilient and low-carbon healthcare systems.

Previously, a target of net zero greenhouse gas emissions in the year 2030 was adopted by the UK National Health Service. In the Netherlands, all major players in the healthcare sector signed a Green Deal, committing to a 50% reduction in carbon footprint by the year 2030.

Important sources of healthcare carbon emissions are energy consumption, medication, disposables and patient travel (Figure 2).^[4] Although we are a small medical specialty, ophthalmology contributes significantly to all these components. We have the highest surgical volumes in medicine and use energy-consuming operating rooms (ORs); we increasingly use single-use products; we prescribe large amounts of (single-dose) eye drops; and we invite many patients to our clinics.



Figure 1. Currently used custom-packs for intravitreal injections in the Netherlands.



Sustainable alternative.

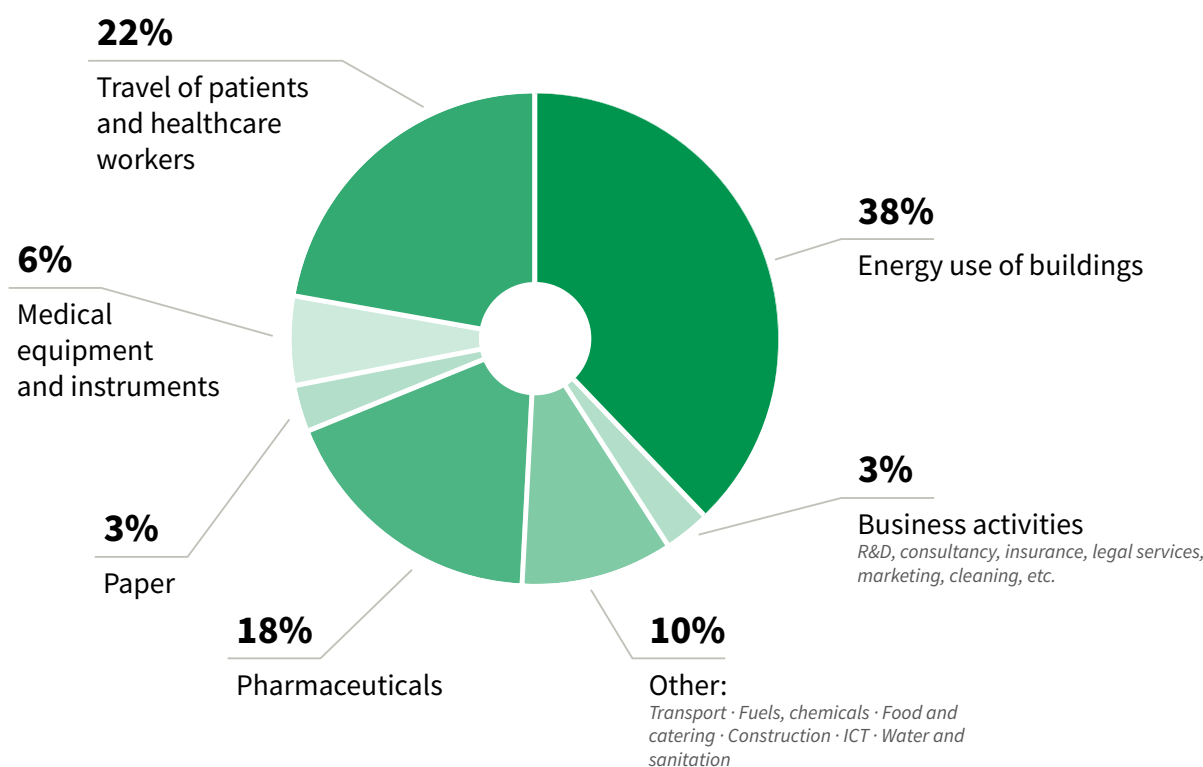


Figure 2. Proportion of the total carbon footprint of Dutch healthcare sector. Percentage: 100% = 11 megaton CO₂. Source: Gupta Strategists, *Transition to a sustainable healthcare*, May 2019 (In Dutch).

SO, WHAT CAN WE DO?

AIR CONDITIONING IN THE OPERATING ROOM

Are the highest ventilation standards really necessary for small-incision eye surgery? In the Netherlands, the recommendation for the OR air ventilation system for cataract surgery is an air change rate of at least six times per hour. We should turn off the air conditioning when the OR is not in use. This may seem obvious, but it is not common practice in many hospitals.

Research shows that shutting down OR ventilation during off-duty periods does not appear to result in an unacceptably high particle count or microbial contamination of OR air, 30 minutes after the system is restarted.^[5] Using an Eco-mode in OR air conditioning will save not only greenhouse gas emissions but also money.

A critical factor is the source of electricity. The air conditioning accounts for more than 90% of the total energy use of the OR, so it is paramount to choose a

renewable energy source instead of fossil-based energy. We should push our hospital management to buy 100% green energy.

WASTE IN CATARACT SURGERY

One phaco procedure in the UK produces around 130 kg CO₂, equivalent to a car ride of 500 km. More than 50% of this is due to procurement.^[6] More recent data are not available, but the use of disposables has grown, adding to clinical waste production. Disposable instruments can account for 10–20 times as much waste as reusable items.^[7] All clinically contaminated waste must be incinerated or burned, which produces large amounts of greenhouse gases.

It is feasible to lower the carbon footprint of cataract surgery. This has been shown by the Aravind Eye Care System in southern India. Aravind performs around 1,000 surgeries per day. They generate 250 g waste and nearly 6 kg CO₂ equivalents in greenhouse gases per phacoemulsification (Figure 3). This carbon footprint is approximately 5% of that in the UK, with comparable visual

acuity outcomes. Many differences can account for this low carbon footprint, including efficient, high-volume logistics and the reuse of instruments, protective equipment and medicines.

These differences do not affect infection prevention. In fact, the endophthalmitis risk after a phaco in Aravind is 0.01%, which is lower than the 0.04% in the US.^[8,9] This fact can partly be explained by the standard use of intracameral moxifloxacin in Aravind. Ironically, this drug is not registered in the United States because of the lack of adequate randomised controlled trials.

Rigid adherence to single-use material creates an excessive amount of surgical waste at a high cost, with no proven benefit in post-operative endophthalmitis risk.^[9] Given the huge number of cataract operations worldwide, changes in the materials used will bring great environmental benefits.

In the past two decades, operating theatres have transformed into disposable theatres;



Figure 3. Differences in amount of waste after a phacoemulsification between USA and India. Left picture: 1 phaco in USA. Right picture: 93 phacos in India (Aravind). Courtesy of Cassandra Thiel, Assistant Professor at NYU.

in every surgical specialty the majority of what is used is disposable. The same holds for cataract surgery, where we have witnessed the transition to disposable I/A handpieces, disposable phaco-cartridges, disposable incision blades and preloaded IOLs. Some colleagues argue that disposables are safer than reusables and should therefore be promoted.^[10] However, this claim has not been substantiated. The debate about disposable versus reusable surgical instruments should be settled by evidence. And the evidence shows that waste, greenhouse gas emissions, and a shortage of commodities are a threat to future generations. As long as there is no evidence that disposable instruments are safer for our patients, their use should be discouraged, not promoted.

Recently, a large survey among more than 1,300 US cataract surgeons and nurses showed that 93% believe that operating room waste is excessive and should be reduced.^[11] More specifically, 78% believe that we should reuse more supplies and 87% want medical societies to advocate for reducing the surgical carbon footprint. Assuming comparable costs, 79% of surgeons preferred reusable over disposable instruments.

MEDICATION

It is important to consider the “reduce-reuse-recycle” rationale for medication

use in ophthalmology as well. Tauber et al. showed that in cataract surgery a lot of medication used pre- and intraoperatively is discarded.^[12] Discarded topical eye drops were the most costly, averaging 148 US dollars per case. Reasons for discarding these medications could be a lack of counselling for patients and lack of medication labelling, facility policies, and noncompliance with burdensome state requirements.^[13]

The largest component of pharmaceutical waste in the study of Tauber was antibiotic drops. As noted by the authors, given the lower rate of endophthalmitis after cataract surgery with the use of intracameral antibiotics, the use of antibiotic drops with cataract surgery is likely to decrease. One should consider whether postoperative antibiotic eyedrops are still necessary when perioperative intra-cameral antibiotics are used.

Secondly, every ophthalmologist should reassess whether reusing multidose medication on multiple patients is possible. For instance, in many clinics it is OR policy to throw medication away after it has been opened for a single patient. But it is important to examine the justification of these policies. Chambers showed that this justification is not scientifically based, but rather a misinterpretation of the evidence.^[14] He explained that

manufacturers of multiple-dose ophthalmic products are required (by the Federal Register) to use an antimicrobial preservative. This antimicrobial preservative minimises the chances of injury to the patient should a contamination event occur.

This additional protection also enables the drug product to be administered to multiple different patients until the bottle’s stated expiration date. Every ophthalmologist should consider whether it is possible to reuse multi-dose medication.

TRANSPORT

The COVID-19 pandemic has shown that remote care of patients via telemedicine is possible.^[15] Telephone calls and video visits can be used to review test results, check on medication adherence, or triage patients, and can replace check-ups for oculoplastic, neuro or paediatrics. Remote care can reduce greenhouse gas emissions.

Another lesson from the COVID-19 pandemic is that online meetings and conferences are feasible. Online meetings have pros and cons, but they certainly cause less greenhouse gas emissions than long-distance travel.^[16] So, why not stick to virtual international meetings?

Social interactions are undeniably important, but a national gathering to watch lectures and discussions

abroad may be a reasonable alternative for many attendants.^[17] Thousands of ophthalmologists flying abroad to attend a medical congress is not sustainable and not justifiable in these times.

IN CONCLUSION

Healthcare professionals are continuously trying to improve the quality of care as well as keeping the healthcare system affordable and accessible for future generations. If we do not lower the carbon footprint of our clinical practices, we will compromise the healthcare systems of our children and grandchildren. We should evaluate our own actions, both private and professional, and take into account their carbon footprints. Only by doing so, do we act according to the oath we swore: *primum non nocere* (first do no harm).

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Founders of The Dutch Working Group on Sustainable Ophthalmology

The Dutch Working Group on Sustainable Ophthalmology was founded in 2019. The aim of this group is to promote the transition to a sustainable clinical practice within our medical specialty. The group promotes research, provides information and coordinates action. Based on current guidelines and scientific consensus and respecting patient safety, the group has written directions for the safe and sustainable implementation of common ophthalmological procedures. Examples are intravitreal injections, cataract surgery, and patient gowns during surgery. The Dutch Ophthalmological Society has adopted and recommended these best practices, which are being adopted in a growing number of hospitals. Recently, Dutch health insurance companies have shown interest in promoting these best practices.

<https://www.oogheelkunde.org/projectgroep-duurzame-oogheelkunde>

From Transcultural Rehabilitation to Global rehabilitation: Evolving insights

How did the WTCR originate and develop? An outline of our transitions as a working group is presented below, illustrated by four different areas focused on by the group.

Frans Vreede, rehabilitation physician, founded the Working Group on Transcultural Rehabilitation (WTCR) in 1976. He was a strong and wise person who inspired many with his clear mind, life experience, and authenticity. The WTCR was a sounding board giving him the opportunity to develop, clarify and transfer his ideas, in particular regarding his “Daily Living” concept.^[1] The core of that concept is summarised below.

The “Daily Living” Concept

The first dimension: break-down of the concept of **Daily Living** (DL). The “highest” level is **Ideas in Daily Living** (IDL), long-term ideas, values and aspirations. The “middle level” is **Activities of Daily Living** (ADL), daily activities steered by short-term intentions through which one realizes the higher level IDL. The “lower level” is **Operations for Daily Living** (ODL), components for activities, consisting of physical and mental exertions and appearances, usually performed automatically, which together enable higher level ADL.

The second dimension: Context. Activities of Daily Living cannot exist without Context. Vreede distinguishes five components: Performance, Product, Place, Period and Persons.

The third dimension: the distinction between **usual** or own and **unusual** or alien activities for a particular person.

EPISODE 1: COUNSELLING AT A DISTANCE AND COMMUNITY BASED REHABILITATION

The aim of the Working Group at its start was Counselling at a Distance for workers in rehabilitation projects abroad. Advice was based on our own experiences and on learning from each other.

We also focused our attention on Community Based Rehabilitation (CBR). We studied and developed ideas on customised CBR aligned health systems from different countries. Two conferences allowed us to invite and meet international experts on CBR: Crippling disorders in Children – a global problem, NVTG, Amsterdam 1992, and the 1st World Congress of the International Society of Physical and Rehabilitation Medicine ISPRM, Amsterdam 2001.

EPISODE 2: TRANSCULTURAL ASPECTS AND FUNCTIONING

We realised that transcultural problems also exist in the Netherlands, affecting the outcomes of rehabilitation for migrants and refugees. Our experiences and understanding were bundled in a booklet edited by Han Bakker.^[1] We also realised that besides understanding transcultural factors, the essence of our advice required deeper understanding and analysis of human functioning, based on the principle of empowerment. At that time, the conventional framework of functioning worldwide was still a “work in progress” by the WHO, referred to as International Classification of Impairment, Disability and Handicap (ICIDH). So to be able to clarify the essence of rehabilitation, irrespective of location, we immersed ourselves in the subject of human daily living, using Vreede’s ideas.^[2] This study resulted in a model of human functioning for description and for analysis. It was operationalised in a revision of the curriculum for postgraduate training in rehabilitation medicine.^[3] From there, further study resulted in a PhD thesis on rehabilitation medicine.^[4]

The present WHO document, International Classification of Functioning, Disability and Health, the ICF, is not single-minded. It recommends that people develop their own theory and model according to their situation. Between 1988 and 2011 “Transcultural rehabilitation” was a mandatory course for residents in rehabilitation medicine. It consisted of case presentations of transcultural rehabilitation problems in the Netherlands, with the main focus on communication. For residents in tropical medicine and international health, the WTCR organised an annual course day on ‘Rehabilitation in Developing Countries’, as it was then called.

EPISODE 3: RESEARCH AND LOW HEALTH LITERACY

The disappointing outcomes in rehabilitation for non-native patients was thought to be a transcultural phenomenon, but we could not identify the specific factors involved. In the late 1990s, the focus of the WTCR on the disappointing results of rehabilitation for refugees and migrants led to research grants from the Health Research Promotion Programme (“Stimuleringsprogramma Gezondheidsonderzoek”). The research focused on assessing to what extent the outcomes of rehabilitation care were worse for refugees and migrants than for native people, and what factors were associated with such outcomes. From the WTCR, Jos Dekker contributed greatly to this research, also enabling Maurits Sloot and Janke Oosterhaven to obtain their doctorate.^[5,6]

Health literacy is the ability to obtain, read, understand, and use healthcare information in order to make appropriate health decisions and follow instructions for treatment.

The research showed that low health literacy explains the non-optimal outcome better and more completely rather than the term “transcultural phenomenon”. Health literacy is associated with a number of domains that influence health: 1) the level of knowledge and information; 2) life style; 3) the use of (and accessibility of) health care; 4) communication with health worker; 5) self-management and use of medicines; 6) culture-based differences in explanatory models. These factors explain how low health literacy goes with higher levels of morbidity and lower life expectancy. Karin Schepman and Marga Tepper wrote an article on this subject well worth reading.^[7] The term “low health literacy” seems to blame the patient. But in fact the way health-care institutions operate is not always tuned to their clients. Indeed, research shows that the outcomes of rehabilitation care can be significantly improved, e.g., by adapting education, stimulating participation of relatives, improving access to interpreter services, and providing more time for consultations.

Health literacy: 28% of adult Dutch people lack the right knowledge and skills to get adequate information about health. 40% of people with low health literacy are native Dutch.

Teaching within the Netherlands Society of Rehabilitation Medicine (VRA)-curriculum underwent a similar shift in content. The subject of low health literacy was given annually, starting ten years ago today, in cooperation with Pharos, a scientific organisation on health differences. In the NVTG-curriculum, the WTCR still organises the annual course day on ‘Rehabilitation in Low and middle-income countries’, as we call it now.

A 60-year-old, living alone on the third floor of a porch house, is suffering consequences from stroke. If admitted, he would need much more functional

improvement before returning home than someone with the same condition, married and living in a large bungalow. However, he might not be admitted in the first place, simply because he would occupy a rehab bed for “too long”.

EPISODE 4: HUMAN RIGHT TO HEALTH AND GLOBAL HEALTH

Human Right to Health implies that people in society receive health care that meets the highest possible standard within that society. A couple of years ago, we became aware of the Human Rights to Health situation in rehabilitation care. It was an eyeopener that in the Netherlands health workers and health organisations could unknowingly violate human rights.

In order to make people more aware, the WTCR created a checklist based on the AAAQ Framework (where A's stand for availability, accessibility and affordability and Q for quality). The toolkit is not meant to score quality of care, but to create awareness of aspects that need improvement. The toolkit and its use are described in an article by Schepman, Tepper and Schutte.^[8]

TO DEPLOY CHILDREN AS AN INTERPRETER FOR CONSULTATION WITH THEIR PARENTS IS A HUMAN RIGHT VIOLATION, AS IT MAY HAVE SERIOUS PSYCHOLOGICAL CONSEQUENCES.

Health disparities are strongly related to differences in the socio-economic, educational, environmental and political situation.

Global Health was put on our radar by the newsletter from KCGH sent on May 31st 2022. Soon after, an article appeared on Global Health and lack of Global Health perspective in rehabilitation care in the Netherlands.^[9] Realising the relevance of the concept of Global Health made us integrate this concept in an already envisaged seminar (April 2023) on Rehabilitation, Systems Thinking, and Unexplained Conditions. This turned out to be a valuable introduction to Global Health.

OUR FUTURE?

Short-term:

- A mini-symposium at the Dutch Congress on Rehabilitation Medicine in November 2023, entitled Equality, Equity and Social Justice: Strengthening rehabilitation practice in the Netherlands through global health.
- Guest editorship for Nederlands Tijdschrift voor Revalidatiegeneeskunde “Focus op toegankelijke zorg en inclusie” (Dutch Journal for Rehabilitation Medicine “Focus on accessible care and inclusion”).

Long-term: the WTCR strives for understanding rehabilitation care from a Global and Planetary Health perspective, promoting individual rehabilitation care, and respecting the Human Right to Health.



Fons van Dijk
On behalf of WTCR

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The Boy Who Harnessed the Wind: A Fascinating Story of Resourcefulness and Planetary Health

The *Boy Who Harnessed the Wind*, a remarkable memoir co-authored by William Kamkwamba and Bryan Mealer, is a gripping account of the journey of a young boy (William Kamkwamba) who lives in a remote part of Malawi and overcomes adversity, building a windmill to provide the village and relatives with electricity. While not a traditional treatise on environmental issues, this inspiring tale offers a subtle yet compelling side-step concerning the crucial interplay between human resilience and our planet's well-being.

Set in the arid landscapes of Malawi in a village called Wimbe, the narrative of *The Boy Who Harnessed the Wind* captures the harsh reality of a community grappling with severe drought and its far-reaching consequences. In the context of planetary health, the book vividly portrays the health implications of environmental challenges. The villagers' daily struggles for sustenance, waterborne diseases, and malnutrition serve as poignant examples of how climate change can affect the well-being of communities, emphasizing the inseparable connection between environmental health and human health.

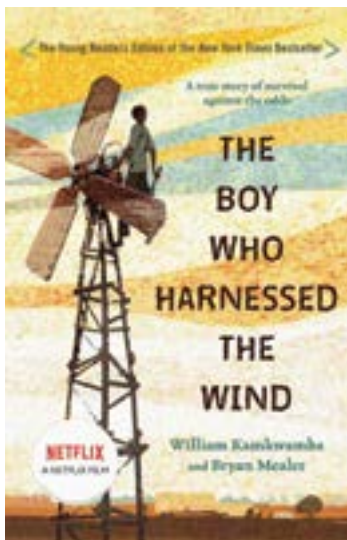
While the primary focus of the book revolves around William Kamkwamba's journey, the story subtly underscores the critical role of sustainable practices in addressing planetary health. Facing extreme poverty and famine, 14-year-old William takes on the quest to construct a windmill from recycled materials, including the fan of an old tractor motor, flattened PVC pipes, bamboo sticks and a rusty bicycle frame.

Together they are transformed into a turbine that powers the house of his family. The windmill becomes a symbol of hope for his community and reflects the potential of renewable energy sources to improve living conditions, enhance access to medical services, and mitigate the health consequences of environmental degradation. William's windmill project, outlined in captivating detail, underscores the

relevance of harnessing nature's resources to enhance planetary health. Renewable energy sources not only benefit communities through access to electricity but also promote cleaner, healthier environments by reducing dependence on traditional, polluting energy sources. The book also accentuates the power of education as a transformative force for both individuals and communities. William's unwavering pursuit of knowledge plays a pivotal role in his innovation, and this emphasis on education is a fundamental aspect of planetary health. It highlights the importance of educating communities about sustainable practices, environmental stewardship, and the relationship between human health and the health of our planet.

In conclusion, *The Boy Who Harnessed the Wind* is a captivating narrative that, while not explicitly framed as an exploration of planetary health, offers profound insights into the subject. It deftly illustrates the impact of climate change on human well-being and highlights the potential for sustainable, eco-friendly solutions. William Kamkwamba's story serves as a powerful reminder that the well-being of individuals and the well-being of the planet are intricately linked. It inspires readers to recognise the pressing need for sustainable practices, renewable energy sources, and education as integral components of planetary health. This book is an excellent read for those who wish to explore the intersection of human resilience and planetary health and to understand how they are inextricably entwined. The eponymous film from 2019 is a great add-on after reading the book, and is a well-made movie in which the population, culture and different languages across the country are beautifully portrayed; the film is available on Netflix.

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published 2009

Source: William Kamkwamba / <https://thekidshouldseethis.com/post/william-kamkwamba-moving-windmills>



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