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Feature

Health Care Takes on Climate Change

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health care takes on climate change

At Health Care Without Harm,
we have worked with partners around the world
to launch a global movement to get the
health-care sector to zero emissions.
Our experience provides lessons for forging
global change to reverse the climate crisis.

BY JOSH KARLINER

Illustration by Kumé Pather

CLIMATE CHANGE HAS ACCELERATED MORE RAPIDLY THAN MOST SCIENTISTS PREDICTED, swiftly bringing us to the precipice of a cascading crisis from which there may be no return. If we keep burning fossil fuels and pumping out greenhouse gases the way we do today, related health crises will escalate. We could see more than nine million additional climate-related deaths each year by the end of the century—and that estimate may be conservative.

Despite such massive health implications, the health sector—its powerful ethical voice, its economic power, and its political sway at every level of government—has been mostly absent from the climate debate since world leaders signed the United Nations Framework Convention on Climate Change (UNFCCC) in Rio de Janeiro more than 30 years ago.

Yet recently the health sector has entered the fray. Today we are witnessing the early stages of a massive movement toward health-care climate action—a burgeoning wave that the organization I work with, Health Care Without Harm (HCWH), has helped build. HCWH is an international NGO that has worked since 1996



to reduce the health-care sector's environmental footprint and mobilize it as an advocate for environmental health and justice. One of the triggers of the recent shift we helped precipitate was our finding in 2019 that if health care were a country, it would be the fifth-largest greenhouse gas emitter on the planet. This surprising news provided motivation. If the health sector is, paradoxically, a contributor to climate-related health problems, it can also be part of the solution. With this insight, we saw an opportunity for systemic change.

In what follows, I explore how this movement began to unfold, how it scaled, and where it is headed as it joins the global cross-sector fight for a healthy climate. I examine how consciousness and engagement evolved rapidly in the health-care sector and, by extension, how it might evolve in other sectors and on other issues. I also grapple with the challenges and shortcomings that the health sector faces in taking on such an existential crisis. Finally, I attempt to draw lessons from the experience that can support further health-care climate action, as well as transformational change in other sectors of society.

The Climate Crisis Is a Health Crisis

THE CLIMATE CRISIS IS A FULL-BLOWN, rapidly evolving global health crisis that threatens to make the COVID-19 pandemic pale in comparison. The savage storms, heat waves, floods, and drought that characterize climate change have already had major impacts on human health. Heat stress exacerbates cardiopulmonary disease and death while also increasing adverse pregnancy and birth outcomes. Climate-related forest fires pollute the air across continents, causing respiratory illness and multiple other maladies. Health infrastructure has been destroyed all around the world because of extreme weather events, undermining the delivery of care. Climate anxiety and other related mental health challenges are growing. Warming temperatures are also bringing vector-borne diseases, such as malaria, Lyme, and chikungunya, to areas where they have previously not existed or have long been absent, putting millions of people at risk.

In addition, widespread deforestation in many regions hastens the spread of zoonotic diseases and increases the possibilities of future pandemics. Extreme weather disrupts agriculture, increases food scarcity, and undermines nutrition in many parts of the world. Climate-triggered human displacement and migration bring forth further health challenges.

All of these trends are happening today, and the world hasn't even hit the 1.5 degrees of warming above preindustrial temperatures that scientists see as a critical limit for avoiding runaway climate change. Without a rapid and radical reduction in emissions, such devastating impacts will only grow. Overall, climate change threatens to set back decades of health and other development gains, throwing hundreds of millions of people in low- and middle-income countries back into poverty. The World Health Organization (WHO) has rightly called climate change the greatest health threat of this century.

The unambiguous root of this looming global emergency is civilization's addiction to fossil fuels. Combustion of oil, coal,

and natural gas contributes to about three-quarters of all global emissions and is also the primary driver of air pollution, which is already responsible for one in five deaths worldwide, killing more than eight million people every year. Without a massive transformation of the world's energy systems, greenhouse gas emissions could easily double that number.

Building a Global Movement

THE FIRST PARAGRAPH OF the first article of the 1992 UN Framework Convention on Climate Change identifies "significant, deleterious effects" on health as one of the major potential impacts of climate change. Yet for many years, as the crisis escalated relentlessly, those working on climate policy, advocacy, and philanthropy largely ignored the importance of health and the potential influence that the health sector could exert. Only in the past decade has the sector—doctors, nurses, hospitals, health systems, health-policy makers, ministries, international organizations, aid agencies, NGOs, private sector entities, and health philanthropies—begun to wake up to the myriad implications and impacts of the climate crisis on human health and enter the climate fray.

In a 2015 article for *Stanford Social Innovation Review* that I co-authored with HCWH president and cofounder Gary Cohen and professor of medicine Peter Orris, we reported on HCWH's success in leading a worldwide campaign to phase out mercury, a persistent pollutant of global concern, from the health-care sector. In the article's conclusion, we noted that we were beginning to apply the lessons learned about mercury to tackling climate change.

Since that time, we have established a robust global network that has played a leading role in building a worldwide movement to confront the health consequences of the climate crisis. We are mobilizing health professionals, hospitals, health systems and organizations, local and national government health ministries, and international agencies to address what UN Secretary-General António Guterres has called "an existential threat to humanity." We are focused on large-scale systems change.

Applying the Hippocratic Oath to "first do no harm," we have concentrated on ending health care's own contribution to the crisis, which stood at a surprisingly significant 4.4 percent of net global emissions in 2014 and grew to 5.2 percent in 2019. Our vision ultimately seeks to align the sector with the ambition of the 2016 Paris Agreement to limit warming to 1.5 degrees Celsius or below, by getting the industry on a trajectory to net-zero emissions by 2050. By focusing on an entire economic sector that cuts across the traditional climate categories of energy, transport, buildings, food systems, plastics, and waste, we are working to forge an innovative, comprehensive decarbonization approach that can also contribute to improved health, community resilience, and health equity. Doing so will require a total transformation of the way health care is delivered, how health-care facilities are built and operate, and how health-care goods and services are produced. To achieve such an ambitious goal will also require collaboration with other economic and social sectors.

HCWH and a handful of partners, including a small, dynamic team inside the WHO, began this journey as voices in the

wilderness. Over time, we helped to establish a growing global movement on climate and health. HCWH built a community of practice called Global Green and Healthy Hospitals that has helped tens of thousands of health facilities, now in 84 countries, to pursue low-carbon, sustainable health care that is also resilient to the impacts of the climate crisis. We advocated for policy changes with subnational and national health ministries. We developed sustainable procurement strategies that would leverage the enormous purchasing power of the sector to move global health-care markets toward greener health-care products and supply chains.

Progress was slow at first, but over the course of the past decade we have seen participation increase every year on every continent. Institutions representing thousands of hospitals, billions of dollars in spending, and millions of health professionals took their first steps toward climate action. Yet we knew we could not be satisfied with such progress, because it was not nearly enough. We knew that if health care continued with business as usual, its climate footprint could triple by 2050. So we began to build a road map—an alternative set of pathways and actions—that, if followed, would align with the Paris Agreement and decarbonize the global health sector by 2050.

The Tipping Point

WHILE MANY ELEMENTS CONTRIBUTED to the large-scale systems change we helped catalyze, we experienced a singular moment when everything shifted—a tipping point that led to rapid and, until today, continuous expansion of action on climate and health. That moment was the launch of the COP26 Health Programme in Glasgow, Scotland, in November 2021.

The United Kingdom's presidency of the COP initiated the COP26 Health Programme, a collaboration among the United Kingdom, the World Health Organization (WHO), and HCWH. It was short-lived yet had an immense impact. The effort aimed to get at least 10 national health ministries to follow the contours of our road map and commit to climate-resilient, sustainable, low-carbon health care. Results quickly exceeded our expectations. By the time the world's leaders descended on Glasgow in November 2021, about a quarter of the world's governments—52 ministries of health from low-, middle-, and high-income countries—had signed on. More than 20 committed to net zero. At the same time, non-state actors representing more than 14,000 hospitals and health centers worldwide committed to net zero via the UNFCCC Race

to Zero, an initiative designed to align business, subnational governments, and civil society with the Paris 1.5 degrees Celsius goal.

By early 2022, the Alliance for Transformative Action on Climate and Health (ATACH), an informal global body anchored at the WHO, was established as the vehicle for the now 83 ministries of health that have signed on to the COP26 commitments to work on implementation. In addition, in 2023, India's G20 presidency, with technical support from the Asian Development Bank (ADB), secured formal commitments from both G20 health ministers and heads of state to align its health systems with ATACH. This development represented the first-ever collective commitment from heads of government on climate and health. Even more significantly, the commitment came from the G20 heads whose countries are responsible for 75 percent of all health-care emissions. Brazil, which has assumed the G20 presidency, will now make climate change one of four G20 health priorities.

The movement toward net-zero health care continues to expand, but in complicated ways. At COP28, the United Arab Emirates' presidency made health a priority for the first time ever, establishing a thematic health day during the December climate negotiations when \$1 billion in new financing for climate and health was announced. The UAE presidency and WHO also convened the first-ever health ministerial meeting to take place at a COP, which drew more than 50 ministers of health. The session issued a declaration on climate and health that included the ATACH agenda and won the endorsement of more than 140 countries.

At the same time, it is lost on no one that, paradoxically, the president of COP28 also heads the Abu Dhabi National Oil Company (ADNOC), which is the world's 12th-largest oil producer and joins many other countries, including the United States, in expanding fossil fuel exploration and production. Ultimately, the most important step toward protecting public health from climate change is to put the fossil fuel industry out of business. As WHO Director-General Tedros Adhanom Ghebreyesus has said, governments need "to lead a just, equitable, and fast phase-out of fossil fuels and transition to a clean-energy future."

The health sector stepped up pressure on governments at COP28, where HCWH and the Global Climate and Health Alliance convened leaders of health organizations representing more than 46 million health professionals to align with many other sectors of society and call on the COP president and member governments to phase out coal, oil, and gas. Health organizations joined other sectors to lobby governments to include such commitments in the negotiating text in Dubai. The results were mixed. For the

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first time since the climate negotiations began, the text called for a transition away from fossil fuels, signaling a pivot point for transformational change and providing a foothold for future action. At the same time, the loopholes that fossil fuel interests established are huge: The document encourages natural gas as a transitional fuel and endorses dangerous distractions, such as unproven technologies like carbon capture and storage. These shortcomings set the stage for a protracted battle over the coming years.

Overall, we have built momentum and achieved tremendous success in mobilizing health-care climate action in a short period of time, helping to put a sector that represents 10 percent of global GDP on a trajectory toward decarbonization while also making it an advocate for a just transition. Yet the short history of climate action is replete with empty, unfulfilled commitments and pledges. Many governments have expressed high aspirations by signing up for health-care decarbonization—or, for that matter, a transition away from fossil fuels—yet such endorsements mean little if they are not followed by action plans, targets, timetables, funding, and accountability measures. Much work remains to avoid repeating unmet expectations and continuing health-care emissions growth.

The health sector also confronts a host of technical obstacles to net zero. The global health-care supply chain—the production and distribution of pharmaceuticals, medical devices, hospital equipment, food, and more—accounts for more than 70 percent of the health-care sector’s climate footprint. Transforming it will require profound shifts in regulating the health-care industry’s manufacturing inputs and processes, as well as its packaging, transport, and disposal systems. These steps will in turn require broad economic transformation in multiple countries and initiative by private sector producers to change their own processes. In addition, governments and health systems will need to enshrine sustainable procurement regulations, policies, and practices.

Other challenges include finding economically viable and equitable paths toward decarbonization, building climate awareness and training programs across the health-care workforce, reforming public and private health insurance so that reimbursement schemes incentivize low-carbon operations, and more. No one really knows what a zero-emissions health system looks like yet. We must collectively invent it, and it will certainly emerge from numerous experiments and advances in different parts of the world. Importantly, solutions in high-emitter, high-income countries—the ones primarily responsible for the problem—will need to be more rapidly deployed and will in many cases look very different from solutions in low-income countries where low-carbon or zero-emissions health care will also need to promote universal access and health equity.

Fortunately, thousands of hospitals and health systems in both the Global North and Global South are committed to net zero and are actively forging solutions on multiple fronts. (See “On the Road Toward Zero-Emissions Health Care” on page 35.) Several national and subnational governments have also developed and/or are implementing plans to convert their commitments into practice. (See “Turning Ambition Into Action” on page 36.) As this movement continues to grow, it will put one of the largest economic and social sectors on the planet on an increasingly climate-smart trajectory, thereby serving as a model for society as a whole.

Why Now?

hOW HAS THIS HEALTH-CARE movement achieved so much in such a short time frame? Three factors have played a critical role.

First, just five years ago, many in the health sector were still arguing that climate was not a priority. But today the health impacts of climate change are front and center for a rapidly growing number of health professionals and health leaders worldwide. When hospitals and health-care centers are underwater or burning down, when nonsmoking children show up in the hospital with black lungs from air pollution, when patient loads from extreme heat max out a system’s capacity to respond, when evidence shows that health care is a major contributor to the problem, when leading scientists and the WHO are underscoring the urgency of climate change, the crisis itself becomes a catalyst for action.

Second, the COVID-19 pandemic revealed what a multidimensional crisis on a planetary scale looks like. As the outbreak of the virus demonstrated the interconnectedness of health and environment, the urgency of climate action for health became more apparent. COVID spotlighted the health sector as a frontline responder. It shed light on the profound inequalities in health and health-care access within and between countries during a global emergency. It also highlighted the imperative to strengthen and transform our health systems to help prevent and prepare for future pandemics, as well as other major health challenges of the 21st century, including climate change.

If our health systems in many parts of the world nearly collapsed under the weight of the pandemic, how will the health sector fare under the heavier burden of an escalating climate crisis? How might we prepare? What can we do to prevent the harm? Amazingly, many doctors and nurses on the front lines, hospital and health system executives, and those leading health ministries began asking themselves these very questions in the midst of a pandemic that had them working overtime. Many prioritized action. For instance, at the height of COVID, Providence, a 52-hospital health system in the Western United States, committed to becoming carbon negative by 2030 and established a program to achieve this ambitious goal.

Third, high-level health ministry commitments to decarbonization and resilience at COP26 were informed and substantiated by examples from early adopters. For instance, the United Kingdom’s leadership on climate and health in Glasgow was based on the concrete experience of England’s National Health Service (NHS), which for the past 20 years has pursued health-care decarbonization with demonstrable success and which plans to achieve net zero by 2045. The NHS’ accomplishments, together with broader UK health sector leadership, legitimated its COP presidency’s engagement on health and signaled to the world that change was possible.

Similarly, when the US Department of Health and Human Services (HHS) was considering committing to the COP26 goals, it took encouragement from a coalition of major health systems that were already well advanced in this work. The US Health Care Climate Council, formed by HCWH, brings together 21 leading health systems representing more than 600 hospitals in 43 states that employ more than 1.3 million people and serve more than 81



million patients annually. The council uses its unified voice to set and track climate goals, share best practices, and collectively advocate for policies. In this case, it sent a letter to President Joe Biden and HHS Secretary Xavier Becerra in support of the US government joining the COP26 Health Programme. The government subsequently committed and then initiated several policy, regulatory, and voluntary efforts to begin implementation.

Four Sets of Lessons

OUR SUCCESS IN GALVANIZING the health-care sector to address climate change has taught us many lessons. Not only are they important for the growing climate and health movement, but they can also ideally provide insight for social movements and social-change agents taking on climate change in other sectors of society. I group these lessons into four overarching categories.

1. *The pandemic was a prologue.* | The most applicable COVID-19 lessons for climate and health are to implement the basic tenets of emergency preparedness. First among these tenets is primary prevention—intervention before health impacts occur. Pandemic prevention can include strategies such as biodiversity conservation, biosafety regulations, protecting animal health, and reducing the spread of zoonotic disease. Meanwhile, prevention of the health impacts of climate change requires a wholesale transformation of the world’s energy systems to radically reduce greenhouse gas emissions.

The pandemic and the accelerating climate crisis teach us that prevention of both these global threats is interrelated. Forestalling requires both an end to the wholesale deforestation of the world’s tropical ecosystems and a cross-sector, collaborative approach that integrates the health of humans, animals, and natural systems as part of a single, interconnected whole. This so-called One Health approach is an emerging framework that has the potential to bring together multiple sectors at the global, national, and local levels to address a diversity of interconnected crises that the world faces.

COVID-19 also taught us the need for greater preparedness. Our health institutions were caught unprepared, despite clear warnings from scientists and forecasters that a global pandemic would likely strike in the near future. Today, scientists project how climate change will severely affect our health. Although some hospitals and health systems around the world are taking appropriate action, we risk being caught unprepared again.

Can we muster the political will for prevention and preparedness on the necessary scale? The world has the tools, technology, and knowledge to achieve both. The pandemic has also taught us that swift and significant societal change is possible. A

connected and networked world backed by political commitment to respond to an existential threat can unleash “ingenuity and innovation operating at unimaginable speed,” as my colleague Liz McKeon of the IKEA Foundation, one of HCWH’s biggest backers, told me as we reflected on the pandemic’s lessons.

COVID also confirmed that our doctors and our nurses are some of the most trusted and respected voices in most societies. They are and will continue to be on the front lines of any health emergency, and they hold moral sway. While episodes of mistrust did plague the health-care sector during the pandemic, the voices of health-care professionals demonstrated their power to persuade the public and overcome political polarization with science and expertise. Health-care leaders can mobilize the public to take on climate change—the greatest health threat of the century.

2. *Networks focused on defined outcomes can accelerate systems change.* | Based on our success in phasing out mercury, we followed a similar approach by first piloting locally in hospitals

and then scaling up to regional and national health systems and ultimately to global policy. Yet the urgency of the climate crisis and the complexity of the health sector demanded a more sophisticated strategy. We decided to leverage the maturity of our networks and the growing, multilayered vibrancy of our movement to mobilize our many partners and collaborate with others to work for systemic change along many different vectors, including from the bottom up, from the top down, and laterally. We have seen that networks of diverse actors that operate with a common objective and in synchronicity can be mutually reinforcing and more robust than more uniform entities pursuing only a single, linear avenue of change.

Working with grassroots organizations from the ground up has been essential to our strategy. Our global network has identified shining examples in the field and/or planted seeds that support the cocreation, cultivation, and then aggregation of multiple successful experiments in diverse settings, rich and poor, urban and rural, north and south. (See “On the Road Toward Zero-Emissions Health Care” on page 35.) This work has shown what is possible both within countries and across borders, establishing an ecosystem of large-scale change—a global community of practice that has inspired, built momentum, and scaled. These many successes have legitimated the work at top policy levels both nationally and internationally, by providing evidence that progress is possible.

At the same time, we have also found a top-down approach vital. Our work with UN Climate Change High-Level Champions encouraged subnational and private health systems to join Race to Zero and make net-zero commitments in growing numbers. Similarly, our collaboration with WHO and the UK COP presidency created an umbrella under which national health ministries could join the COP26 Health Programme and then ATACH. These top-down commitments and the policies emerging from them have scaled far beyond what a grassroots health-care movement for climate action could have accomplished on its own. In turn, this top-down engagement has established political legitimacy and, in some cases, the mandate for health-care decarbonization and resilience to further scale on the ground and across all segments of the health sector.

This network-based approach focused on clear, defined outcomes has facilitated the interplay between the top-down and the bottom-up approaches. To establish the COP26 Health Programme, for instance, we had three global networks that operated on different, overlapping planes. In its role as COP president,

the UK mobilized its diplomatic network and set of embassies around the world to reach out to government leadership. Working in parallel, the WHO activated its network of regional and national offices to engage health ministers. And in coordination with the two, HCWH worked through its global network and partners to influence health ministry departments and staff. The synergy between these three helped generate a cascading set of commitments around the world.

All of this momentum also created the conditions for a series of essential lateral efforts to emerge. For instance, multilateral development agencies such as the World Bank and ADB are now examining how they can align the more than \$40 billion in Development Assistance for Health they and others spend every year on climate action. Meanwhile, climate funding agencies such as the Green Climate Fund are exploring how they can invest hundreds of millions of dollars in climate-resilient health care. All of these institutions are hearing from their donor governments that this effort is a priority. Their engagement, in turn, promises to shift the trajectory of health financing and health development in low- and middle-income countries in the coming years.

Meanwhile, the private sector-led health-care supply chain—including health industry groups representing medical-device manufacturers, pharmaceutical companies, private health insurance companies, and others—are paying increasing attention to their own significant contributions to health care’s climate footprint. They are responding to the policy and market signals generated by the growing movement and beginning to investigate ways to decarbonize their products and operations. Some leaders in the health sector are also beginning to advocate for climate-related corporate accountability and regulatory measures for health-care suppliers and manufacturers.

The complexity of this multilevel, multidimensional change is something that no one individual could foresee completely and that no one organization can claim credit for. Thoroughgoing systems change requires the multiple elements of any one system to engage in the transformation.

3. Scaling up means letting go. | Charlotte Brody, one of HCWH’s founders, has said that “you know it’s a movement when you don’t know everything that’s going on in it.” Those working on the intersection of climate and health are definitely becoming a global movement. In the past several years, the movement has transcended the initial, small group of organizations and networks that were its founders to include major international institutions, dozens of governments, millions of health professionals, and

The humanitarian aid sector, including the International Committee of the Red Cross and Doctors Without Borders, is taking up climate. Grassroots health organizations are aggressively advocating for health sector fossil fuel divestment.

on the road toward zero-emissions health care

Tens of thousands of hospitals around the world are taking actions toward decarbonization. Here are several examples, including from those participating in the UNFCCC Race to Zero.

Australia—Hunter New England Health

John Hunter Hospital in Newcastle has established the largest solar panel installation of any hospital in the world as part of 120-facility Hunter New England Health's commitment to being carbon and waste neutral system-wide by 2030. Between 2020, when it began, and 2022, Hunter New England has already reduced its emissions by 24 percent while saving \$1.45 million (2.3 million Australian dollars), which it reinvests in frontline clinical services.

Brazil—Associação Paulista para o Desenvolvimento da Medicina (SPDM)

The largest philanthropic health-care institution in Brazil, SPDM manages 17 hospitals and employs 31,000 people. It has deployed a series of decarbonization initiatives, including training staff in energy-saving strategies, increasing energy efficiency, installing on-site solar, replacing 80,000 fluorescent lamps with LEDs, substituting out high-emissions anesthetic gases, and implementing food-waste management programs. Together, these efforts reduced SPDM's emissions by 50 percent between 2018 and 2021 while generating savings in energy costs and a \$62,000 annual cost reduction in anesthetic gases.

Global—Bupa

The international health-care and insurance company Bupa has set a net-zero goal by 2040, underpinned by 1.5-degree-aligned, science-based targets across all three emissions scopes and Bupa's investment portfolio. It has also established an investment fund to allocate resources to the decarbonization of operations and value chains. By 2022, Bupa had reduced greenhouse gas emissions by 26 percent (Scopes 1 and 2); it now uses 84 percent renewable electricity across all of its operations around the world.

India—Aravind Eye Care

System performs 700,000 surgeries per year and generates only six kilograms of carbon dioxide equivalent per surgery—approximately 5 percent of the carbon footprint of comparable surgeries with similar outcomes in the United Kingdom. Aravind's strategies include safe reuse of surgical materials, recycling of surgical waste, using local vision centers for surgeries, energy-efficient lighting, deploying solar energy, travel-reducing telemedicine, and local procurement of sustainably produced products. The model is scaling to other parts of India and South Asia.

United Kingdom—NHS

Clinicians working with NHS Highland in Scotland have organized a network of anesthesiologists, Green Anaesthesia Scotland, to deliver a significant reduction in greenhouse gas emissions from anesthetic gases while saving 50 percent of the system's budget for volatile pharmaceuticals. Meanwhile, the Newcastle Hospitals Trust, one of the largest trusts in England's NHS, is working with more than 700 of its suppliers to shift their product lines and decarbonize the overall supply chain to net zero by 2040. This contributes to a broader effort by NHS England to do the same.

United States—US Health Care Climate Council

All 21 leading members of the US Health Care Climate Council are working to reduce their climate footprint. For instance, Kaiser Permanente, the largest integrated nonprofit health system in the country, has achieved carbon neutrality by investing in energy efficiency, carbon offsets, on-site solar generation, and more than 360 megawatts of wind and solar farms, thereby becoming one of the top users of green power in the country. The Cleveland Clinic is greening its operating rooms as part of its goal of becoming carbon neutral by

2027. By reducing air changes per hour during nonsurgical periods, it is saving 25 million kilowatt-hours in energy use and \$2.5 million annually. Each year, Boston Medical Center's rooftop farm harvests close to 6,000 pounds of produce, providing fresh, local fruits and vegetables to hospitalized patients and cafeterias while reducing the hospital's carbon footprint.

Philippines—Mary Johnston Hospital

From 2019 to 2021, Mary Johnston Hospital, a private facility with 280 employees that serves 18,000 patients per year in Manila, spent \$539,000 annually on electricity, an expense that it aims to eliminate by deploying efficiency strategies and using renewable energy sources. So far, it has installed 1,024 solar panels, replaced more than 1,500 compact fluorescent lamps with LEDs, and invested its savings into subsidizing diagnosis and treatment of low-income tuberculosis and HIV/AIDS patients.

South Africa—George Regional Hospital

Western Cape Department of Health and Wellness is committed to net zero. One of its hospitals, George Regional Hospital, a rural facility serving the poor in the Western Cape of South Africa, established an on-site, sustainable waste-treatment facility that reduced the cost of disposal and treatment of health-care waste, stopped incineration of some waste, eliminated health risks of exposure, and significantly reduced the carbon footprint associated with waste transportation. This approach has since been applied to six other hospitals in the system.

turning ambition into action

Some health systems in **high-income countries**—the biggest climate polluters—are taking the lead to decarbonize rapidly.

England's National Health Service (NHS) has committed to reaching net zero, including its supply chain, by 2045. This goal has now been incorporated into legislation.

The NHS and the **United States** Department of Health and Human Services (HHS) are working with a number of countries to align procurement requirements to foster decarbonization.

More than 1,000 US hospitals have pledged through HHS to reduce emissions and build climate resilience.

The US National Academy of Medicine has established an Action Collaborative on Decarbonizing the US Health Sector—a public-private partnership of leaders from across the health system.

In 2023, **Portugal** published a national carbon footprint assessment and action plan for decarbonization.

The Netherlands have established a Green Deal on Sustainable Healthcare to reduce emissions by 55 percent by 2030 and achieve carbon neutrality by 2050.

France has developed a Road Map for Sustainability in Health Care.

Singapore has established a Centre for Sustainable Medicine aiming to decarbonize its health system and make it resilient to climate change.

Efforts are also underway in **low- and middle-income countries** to advance low-carbon, climate-resilient health development strategies that ensure the path to universal health coverage.

Colombia is working with 400 health facilities to set a baseline, identify priorities, and develop a plan (mandated by law) to promote mitigation and adaptation in the sector.

Indonesia is working to establish a program to measure the carbon footprint of its public-health facilities across the country and then implement actions.

Argentina and **Chile** have adopted policies that mandate climate action in the health sector, including both resilience and decarbonization.

Laos and **Nepal**, among others, have taken the first steps to calculate their health-care sectors' climate footprints and set plans for climate resilience and decarbonization.

Governments and organizations are implementing strategies to power access to health and build resilience with renewable energy, particularly in Africa and Asia. Overall, nearly one billion people globally use health-care facilities that do not have reliable electricity.

Chhattisgarh state in **India** is using solar energy for all of its primary health centers and more than 90 percent of all of its district hospitals and community health centers. Selco Foundation is working with national and state governments to solarize an additional 25,000 health centers.

Power Africa, a US government-led partnership, is working with sub-Saharan African governments to deliver reliable, renewable power to 10,000 remote health facilities.

Gavi has rolled out more than 40,000 solar-powered vaccine refrigerators across its global operations.

Unitaid has published a climate and health strategy and is ensuring its investments have mitigation and resilience considerations.

hundreds of health institutions whose missions range from vaccination to universal health coverage to noncommunicable-disease prevention to malaria eradication.

New networks of doctors and nurses are advocating for clean air and climate action. National academies of medicine, national public-health associations, and prestigious universities are increasingly involved. Two of the largest health philanthropies in the world, the Wellcome Trust and The Rockefeller Foundation, have committed hundreds of millions of dollars to climate and health.

The Global Climate and Health Alliance is working to bring a united voice supporting human health to the climate negotiations.

The humanitarian aid sector, including the International Committee of the Red Cross and Doctors Without Borders, is taking up climate. Grassroots health organizations are aggressively advocating for health sector fossil fuel divestment, and the People's Health Movement, a global network of health activists, civil-society organizations, and academic institutions, is exploring the interface of health justice and climate justice. The health-products innovation initiative Unitaid is investing \$100 million in low-carbon health technology over the next five years; Gavi, the international pro-vaccination alliance, is seeking to decarbonize the vaccine supply chain; and organizations like the Clinton Health Access

Initiative are applying their experience influencing markets and campaigning for public health to help combat the carbon footprint of the pharmaceutical industry.

This burgeoning climate and health movement is opening up a host of opportunities and recruiting actors into the fight. As the new reality evolves, we recognize that our role is shifting from that of pioneers helping to create momentum to letting go of large parts of the work and ceding it to others. We are focusing on our core work with hospitals and health systems while also mobilizing health professionals as advocates. We are working less on the specific initiatives of individual hospitals and health systems and turning more to developing tools, guides, trainings, and policies that support scaled-up implementation and advocacy.

We are also partnering with large institutions, such as WHO and ADB, that have greater capacity to scale the transformation than we do. We are building partnerships with the growing number of mainstream health organizations that are joining the movement. We are increasingly playing a leadership role as facilitator, catalyst, and knowledge partner. We are generating programs and initiatives and spinning them out into the world, learning to let go as these initiatives evolve and scale on their own. And we are turning to focus increasingly on the greatest obstacle to protecting health from climate change: the burning of fossil fuels.

4. A society-wide movement for a just and healthy transition away from fossil fuels is essential. | Despite the large-scale systems change underway in health care itself, the climate crisis is accelerating and morphing more rapidly than the transformational shifts in the sector. Leveraging change so that health care gets on a trajectory to net zero is an important step and a huge undertaking, but on its own it is obviously not nearly enough. We can't even expect to achieve net-zero health care without fundamental systems change in other sectors of society beyond the hospital walls.

The most important lesson from our experience in the past several years may be the most obvious one: Aligning health care with the ambition of the Paris Agreement to keep warming below 1.5 degrees Celsius must necessarily be part of a broader, multisector effort that ultimately engages all parts of society. The growing health sector movement on climate must embrace this ambition and focus on winning immediate gains and achieving a rapid, just, and healthy transition away from fossil fuels and toward clean, renewable, affordable, accessible, decentralized, healthy energy. Without it, health action for climate will ultimately fail. No amount of investment in health-care infrastructure resilience or

health adaptation to address malaria, for instance, will be sufficient if global temperatures keep rising.

At the same time, embedding health in climate action can help to accelerate the broader systems change necessary to stabilize the global climate. The trusted voice of health professionals advocating for clean air and a healthy planet can help counter the onslaught of misinformation and fossil fuel industry propaganda. A just, healthy, and rapid transition away from coal, oil, and natural gas will ultimately protect the health of people and the planet from climate change.

While a rapid transition would avoid the worst ravages of a 2- or 3-degree Celsius temperature increase, a just and healthy transition could also address some of the biggest health challenges of our day. For instance, it could clean the air, preventing millions of air pollution deaths and saving trillions of dollars in health-care costs, thereby creating a virtuous cycle in reducing health care's footprint. A transition to decentralized renewable energy could also boost health equity by vastly improving access to health services in a world where an estimated 59 percent of health-care facilities in low- and middle-income countries still do not have access to the reliable electricity they need to provide basic care. Ultimately, a just and healthy transition would reduce the burden of communicable and noncommunicable diseases from climate change, protecting and improving human, animal, and planetary health.

We at HCWH have charted a course for transformational systems change to move the health-care sector to a zero-emissions trajectory. It's time now to harness this momentum and continue to build the global climate and health movement. We must expand on the health sector advocacy's rich history of organizing over the past 150 years for public sanitation, protecting workers' rights, nuclear weapons nonproliferation, tackling HIV/AIDS, and controlling tobacco. Protecting public health from the climate crisis may be a bigger challenge, but we can succeed by learning lessons from the past and innovating for the future. ●

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