

Health care's responsibility

Given that the health sector contributes 4.4% to global GHG emissions, it is imperative that health care acts now to begin to reduce its own climate footprint and move toward net zero emissions.

Health policies and investment must be retooled to support decarbonization. If the health sector — individual health care facilities, health systems, ministries of health, international and bilateral development agencies, and private health care organizations — all take action toward this goal, it can be achieved. If we can align health care development, growth, and investment with global climate goals, the 10% of the world economy that health care represents can help drive decarbonization and lead to a climate-smart, more equitable, and healthier future.

The following are a set of recommendations of how to get there.

Six actions areas for climate-smart health care

Action 1: Reduce health care's climate footprint now

Thousands of hospitals and health systems, both public and private, are already taking action to address their climate footprint, both through Health Care Without Harm's Health Care Climate Challenge and via related actions (See: Climate-smart health care: A low-carbon and resilience framework for health sector action on page 41). These leaders can provide examples of the way forward for the sector.

The Greenhouse Gas Protocol provides a useful framework for the health sector to further advance its climate mitigation efforts, while aligning with other sectors. Action in each of the three Scope areas by all actors at all levels in the health sector can further develop parallel and related paths toward zero emissions.

Scope 1: Decarbonize health care facilities. WHO should produce a guidance that outlines actions that health facilities can take to reduce their climate footprint and become more resilient.

Such a guidance would enable and empower national and sub-national ministries of health that manage hospitals, private health care systems, as well as individual hospitals and health centers to build on existing best practice examples and take on a series of cost-effective initiatives that can move the sector

toward net zero emissions from the bottom up, while simultaneously improving climate resiliency.

These actions could include the use of appropriate low-carbon technology for care; low-carbon or net zero emissions building design and construction; investment in renewable energy and energy efficiency; climate-smart cooling technologies; sustainable waste, water, and transport management; and minimizing the use of high global warming potential anesthetic gases; among others.³⁷

Decentralized models of care that take advantage of telemedicine and other new technologies can also help reduce health care's climate footprint. Health systems that are increasingly focused on prevention rather than treating disease will further reduce the need for carbon intensive treatment and facilities.

Climate-smart strategies and investments can also foster more equitable access to health care, and serve as an anchor for sustainable community development, and therefore not only resilient health systems, but also resilient, healthier communities. For instance, in energy-poor settings, powering health care with low-carbon solutions can enhance access to care, contributing to the advancement of universal health care for the poor and most vulnerable.

Scope 2. Health organizations, public and private, should invest in and advocate for the decarbonization of local and national energy systems, and the implementation of clean renewable energy at the local, sub-national and national levels.

With 10% of health care facilities' climate footprint coming from purchased energy, and with a large amount of the supply chain also consuming grid energy, decarbonization of national energy systems is essential to move health care to net zero emissions. As discussed in this paper, there is a large potential to mitigate health care's climate footprint by decarbonizing the domestic energy system.

Health systems in several countries are investing renewable energy through power purchasing agreements and other mechanisms, while others can use their political and ethical influence to impact energy policies in their jurisdictions (Action 2). For instance, the health sector can partner with city-based efforts such as those of C40 cities, that are embracing robust renewable energy goals.

Scope 3: Decarbonize the health care supply chain. Health ministries, hospitals, and health systems should set criteria for low-carbon or zero emissions procurement. Suppliers and manufacturers should decarbonize their operations and products.

Much of the 71% of health care Scope 3 emissions are embodied in the global supply chain. The transition to low-carbon or decarbonized health care will require moving global production of health care products — everything from pharmaceuticals to medical devices, from food to clothing — onto a zero emissions trajectory.

There is limited guidance or standardized methodology on how to calculate the health sector's global supply chain and therefore a limited understanding of key areas for action. An important step in addressing this challenge is to identify the GHG emissions hotspots in the global supply chain, in terms of both products and geography.

Decarbonizing the health care supply chain will require greater responsibility by and accountability of the global corporations at the center of it. Such accountability can be achieved through national government action and through market-based approaches, including leveraging health care's purchasing power toward low-carbon energy sources and technologies, as well as plant-centered, sustainable, and locally grown food.

For instance, health systems acting in concert around the world can pursue a demand-based strategy to require health care products and devices based on emissions criteria. Such an approach can also influence broader markets and policy and helping accelerate the transition to clean, renewable energy and a low-carbon future.

Tools and resources need to be developed to catalyze and support such a major effort. UNDP and Health Care Without Harm are taking a step in this direction by working together in an initiative funded by the Swedish International Development Cooperation Agency (SIDA) to develop a set of criteria, model policies (such as requesting carbon data in tendering documents), and tools for health ministries, health systems, and hospitals to implement sustainable procurement across the sector, including reducing carbon emissions.³⁸

Action 2: The health sector must support a societal transition to clean, renewable energy

The health sector in every country should advocate for a rapid phase-out of fossil fuels and a transition to clean renewable energy so as to help move health care to zero emissions while also protecting public health from both local pollution and global climate change.

In every country, the health sector has its own government ministry with a seat at the table in cabinet discussions, and analogous local institutions in nearly every city, state, or province. These organizations, together with private health systems, health professionals, medical students, and civil society organizations should all advocate for the transition to clean, renewable energy and transportation as the key step in protecting public health from climate change and as a central measure to reduce health care's climate footprint.

As we have seen in this paper, decarbonizing a country's energy system and transitioning to clean, renewable energy is essential for health care in every country to decarbonize. By helping foster this transition, the health sector will contribute to its own climate footprint reduction.

Doing so would also protect public health, by transitioning from fossil fuels to clean, renewable energy and therefore reducing the burden of disease from both air pollution and climate change. This will in

turn reduce health care costs. For instance, according to the International Monetary Fund, approximately half of the United States' \$5.3 trillion a year in "energy subsidies" are not direct financial subsidies, but rather attributable to the health costs of air pollution. Conversely, pricing carbon in line with these health impacts would cut roughly 50% of air pollution deaths and 20% of CO₂ emissions.³⁹

Such a significant reduction of air pollution and the mitigation of the worst impacts of climate change will also reduce the need for health care to consume and expend resources to treat air pollution and climate related illness. This in turn would create a virtuous cycle and further reduce health care's climate footprint.

The transition to clean, renewable energy is occurring in many countries and in sight globally. There are increasingly viable pathways for most of the world's countries to shift to 100% clean, renewable energy by 2050, avoiding global warming above 1.5°C and millions of annual deaths from air pollution.⁴⁰

Action 3: Chart the course for zero emissions health care by 2050

The road map should be based on principles of global equity for climate and health, a unified, climate-smart approach to mitigation and resilience, and an approach that fosters action at all levels.

As this paper documents, there is a wide variation between the emissions intensity of health care in different countries and regions of the world. Each country has its own unique circumstances, and will face specific challenges as it moves to decarbonize and build greater climate resilience in its health sector.

At the same time, given the globalized nature of the health sector, particularly its supply chain, and the significant impact of some countries and regions, a global road map can help chart a course to ameliorate the health sector's climate impact and move the sector toward zero emissions by 2050.

Such a road map should be based on the following principles:

Global equity for climate and health: The principle of “common but differentiated responsibilities and respective capabilities in light of different national circumstances” used by the United Nations Framework Convention on Climate Change should apply to this effort.⁴¹ In other words, a road map should identify significant time-bound actions along three pathways. First, those most responsible for contributing to the problem should take the most rapid action. Second, the road map should identify pathways that support middle-income nations whose health sectors are projected to grow significantly in coming years to not fall into the trap of investing in old carbon intensive models that replicate the problem, but rather adjust their health sector growth trajectory to align with national and international climate goals. And third, a global road map must also identify how those health sectors least responsible for climate emissions can forge a transition to a low-carbon health care development path that improves health equity and access. Financing mechanisms for the transition should also be identified.

A unified approach toward mitigation and resilience:

While putting health care on a path toward zero emissions is essential, so is adaptation — building climate resilient health care infrastructure and systems. Hospitals and health centers are often directly impacted by extreme weather events, while health professionals are first responders to climate impacts in their communities. Building health care resilience is often the most compelling and urgent

action for health systems impacted by climate change everywhere. It is particularly important for those in low-income countries whose health systems’ climate footprint may be small, yet who are severely impacted by climate change. Increasing climate resilience and mitigating health care’s carbon emissions can be complementary rather than competing objectives (See: Climate-smart health care: A low-carbon and resilience framework for health sector action on page 41). A global road map should chart this course.

A global framework for action at all levels: Health care climate action will manifest differently, depending on the local, national, and regional differences across the health care sector. Such differentiation may be determined by a sector’s level of development, its emissions profile, and its composition. For instance, what portion of the sector is public vs. private? Is the country a major supplier and manufacturer of health care goods and services? What is the carbon intensity of the country’s electricity grid and its overall economy? Nevertheless, there are several broad principles and approaches for climate-smart health care that can be applied to all (See: Climate-smart health care: A low-carbon and resilience framework for health sector action on page 41). A global road map should establish a framework for regional, national, and sub-national action plans that contribute to a country’s Nationally Determined Contributions to the Paris Agreement (Action 5). It can also help chart a course for bilateral and multilateral health aid and finance (Action 4). And it can begin to set targets and timetables for decarbonization of the supply chain — including the pharmaceutical and medical device manufacturing industries.

Action 4: Make development assistance for health climate-smart

Bilateral aid agencies, multilateral development banks, other health funding agencies, and philanthropies should integrate climate-smart principles and strategies into their health aid, lending, and policy guidance for developing countries. Those funding climate mitigation and adaptation should integrate health into their programs.

Global institutions are beginning to move in this direction. For instance, the World Bank, in collaboration with Health Care Without Harm, published Climate-Smart Health Care as a framework

for its health development assistance (See: Climate-smart health care: A low-carbon and resilience framework for health sector action on page 41). Meanwhile, in the lead up to the 2019 Climate Summit

in New York, the UN Secretary General for the first time placed a high emphasis on the health dimensions of climate change.

One of the action items promoted through the Summit by WHO, the governments of Peru and Spain, as well as others is for multilateral development banks; climate, health, or development funds; bilateral development agencies; philanthropic organizations; and/or private sector actors to commit to significantly scale up their investment in proven interventions for climate resilient, low-carbon, environmentally sustainable health systems.⁴²

As discussed earlier, Development Assistance for Health (DAH) totals more than \$37 billion annually.⁴³ While a relatively small part of the world's total spending on health, DAH has a major influence on the design of health systems and implementation of health policy in many developing, primarily low-income countries.

By making DAH climate-smart, these powerful institutions can assure that the health sector invests in a low-carbon, climate-resilient health development model that establishes a trajectory toward zero emissions health care while strengthening health systems and promoting health access.

Under such an approach, DAH funded primary health care can become a powerful agent for advancing climate protection, community climate resilience, and low-carbon development. For instance, renewable energy, particularly in remote areas, increases the resilience of health care facilities to climate change. Health care facilities powered by solar or wind energy as well as deploying increasingly energy efficient medical devices can be more cost-effective to run, more productive, and can improve access to health care, thereby contributing to the goal of universal health coverage.⁴⁴ Indeed, the infrastructure and operational efficiencies of primary health care facilities around the world should become shining examples of renewable energy and sustainable development.

Action 5: Establish and implement government action plans for climate-smart health care

National and sub-national governments should establish action plans to decarbonize their health systems, build resilience, and improve health outcomes.

The health ministries of national and sub-national governments must provide leadership and take action to transition the health systems under their jurisdiction toward decarbonization and climate resilience. In many cases, they will require financing and investment to do so. They will also need political support from their government sectors tasked with leading the work on climate change. Conversely, they can influence these other sectors of government.

International and civil society organizations can help facilitate this process by creating a standardized and adaptable framework for these plans and by convening key stakeholders to develop them in

multiple jurisdictions. National and sub-national plans, particularly in low- and middle-income countries, can be linked with the UNFCCC National Adaptation Plans and the health components of National Adaptation Plans (HNAPs) that WHO is supporting countries to produce.

Governments can also draw from existing examples, including the work of England's National Health Service Sustainable Development Unit;⁴⁵ a national strategy developed by WHO and Health Care Without Harm for the Maldives;⁴⁶ the work of the Boston Green Ribbon Commission's Health Care Working Group to develop a strategy for that city;⁴⁷ the establishment

of state-wide Health Care Climate Alliances in Massachusetts and California to impact policies in those U.S. states;⁴⁸ and a civil society effort led by the Climate and Health Alliance of Australia to establish a National Strategy for Climate, Health and Well Being, currently being adapted by several state governments there.⁴⁹

National and sub-national health care climate action plans can serve as vehicles to convene the various stakeholders in the health sector in a given jurisdiction, and to mobilize the sector to make a contribution to sub-national or national climate policy as well as a country's Nationally Determined Contributions for Paris.

In order to best develop and implement such plans, national and sub-national governments will need to understand their climate footprint. While this paper is the first ever global analysis of health care's climate footprint, it provides a necessarily limited view of 43 individual countries' footprints where data is available. As noted previously, recent country studies in Australia, Canada, England and the United States have shed a more detailed light on health care's climate footprint in this handful of countries. However, in most

of the world national and sub-national health ministries have little capability to calculate the climate footprint of the sector they are responsible for, let alone track it. Overall, this is no standardized approach for the sector.

Therefore, WHO should establish a validated measurement approach and tracking system that allows health ministries at the national and sub-national levels as well as other national and regional health standards bodies to develop granular analyses of their health sectors' climate footprints, track progress, and take action.

A standardized framework should be designed to allow all governments to measure their health sector's footprint and track their progress toward decarbonization and resilience. Such a tool would help inform departments or ministries of health as they develop action plans that contribute to the implementation of municipal, state/provincial and national climate policies, as well as countries' Nationally Determined Contributions to the Paris Agreement.

Action 6: Deepen research on health care and climate change

Health care and climate change is a new sub-field of research in the relatively new research area of climate and health. As Health Care Without Harm and Arup developed this paper it became clear that further research is necessary to better understand trends in the interplay of health care and climate change, so as to facilitate the transition of the health sector to a climate-smart future.

Some of the research areas we identified include:

- An analysis of the future trajectory of health care emissions under various scenarios of investment, development, and growth and their implications for carbon emissions.
- National and sub-national level research on health care's climate footprint based on a standardized methodology (Action 6).
- Identifying carbon budgets for national health systems.
- Developing a sophisticated structural path analysis of the climate emissions from the health care supply chain and identifying key points of leverage for decarbonization.
- Developing a more sophisticated analysis of health care's climate emissions based on the WHO categories that define the health sector.
- Establishing economic analysis of the costs and benefits of transitioning to climate-smart health care, as well as the necessary investment and financing mechanisms that can facilitate the transition.

Health, as with every sector of society, has the responsibility to align its actions and development trajectory with the Paris Agreement in order to stave off the worst impacts of climate change.

Given its mission to protect and promote health, the sector also has a special responsibility to implement the Hippocratic Oath to “first, do no harm” as it relates to its own climate footprint.

To resolve the climate crisis is a daunting task for all of civilization. For the health sector specifically, serious climate action will require facilities, systems, and ministries, together with manufacturers and suppliers to organize to achieve net zero emissions by 2050 or before.

The sector must undertake this effort in the context of its own growth and demand for health services. It must become climate-smart while addressing its own inequities, and in the context of meeting global health goals, including the Sustainable Development Goals.

If it fails to act decisively, health sector emissions could grow to make up an even more significant portion of the global climate footprint. Without concerted action, the health sector will find itself on a trajectory that is in contradiction with growing public alarm at the social, political, economic, and ecological dimensions of the climate crisis. Climate change, in all its dimensions, will become an increasingly high priority for consumers and decision-makers across every society. Health care must become a leader in solving this problem.

Fortunately, several health care institutions in multiple countries are already leading the way toward decarbonization (See: Climate-smart health care: A low-carbon and resilience framework for health sector action on page 41). Several international institutions have also called for health care to address its own climate impacts. The WHO has called for health systems to “lead by example, advancing models of low-carbon health care”⁵⁰ and has suggested that “a low-carbon development path for health systems and ultimately a transition to net-zero emissions is essential for health sector facilities to meet the goal of the Paris Agreement of maintaining global warming below 2.0 °C or 1.5 °C.”

⁵¹ The World Bank has established a framework for climate-smart health care (See: Climate-smart health

care: A low-carbon and resilience framework for health sector action on page 41). In the lead-up to the UN Secretary General’s 2019 Climate Action Summit, the WHO, together with the governments of Peru and Spain advocated for multilateral development banks, climate funds, bilateral development agencies, philanthropic organizations, and private sector actors “to commit to significantly scale up their investment in proven interventions for climate-resilient health systems”.⁵²

These are all just initial steps for the health sector. To solve the problem documented in this paper, it is essential that all health systems in high-, middle-, and low-income countries, together with the private sector, development agencies, multilateral funders, international organizations, and civil society, take concerted action to put health care on a trajectory to net zero emissions, while continuing to strive toward globally agreed upon health goals. Every nation and segment of the health sector must do its part.

In addition to the decarbonization of the sector itself, a big part of the solution will need to be disease prevention. In other words, reducing the growing global burden of non-communicable disease depends on addressing the factors that lead to them — tobacco, alcohol, air pollution, and petrochemical contamination of our environment. Doing so will reduce carbon intensive hospitalizations, the demands for health care services, and the use of carbon intensive pharmaceuticals as treatment. Such prevention will also reduce health care costs.

Many of these health-based interventions will also reduce carbon emissions outside of the health sector. Air pollution is a case in point. The main driver of air pollution and climate change is the same: the combustion of fossil fuels. Addressing the scourge of air pollution and solving for climate change requires the same action: transitioning to a clean energy future. This preventative action will save millions of lives, significantly reduce climate emissions and reduce health care costs.

Ultimately the health sector goals of health promotion, disease prevention, universal health coverage and the global climate goal of net zero emissions must become intertwined. The sector must become climate-smart. Both climate justice and health equity depend on it.

Climate-smart health care: A low-carbon and resilience framework for health sector action.

A 2017 World Bank report, co-produced with Health Care Without Harm, established a new approach that bridges the divide between adaptation and mitigation in the health sector. While mitigation and resilience are often placed in separate silos in the climate world, the climate-smart health care approach encompasses both low-carbon and resilience strategies in an overarching framework.⁵³

Climate-smart health care is an approach for designing, building, operating, and investing in health systems and health care facilities that generates minimal amounts of GHGs. It puts health systems on a climate-smart development path, aligning health development and delivery with global climate goals. This approach saves money by reducing energy and resource costs. It can improve the quality of care in a diversity of settings. Climate-smart health care strengthens health systems by increasing facilities' resilience to extreme weather events and other disasters, while also promoting approaches to adaptation.

As hospitals and health systems explore opportunities to address climate change, they are finding significant overlap and synergy between mitigation measures and climate change resilience interventions.

Many resilience strategies also contribute to climate mitigation and vice versa — for example, siting health sector facilities with access to public transportation, deploying on-site energy generation including solar and other renewable sources, combined heat and power, building with natural ventilation, purchasing energy-efficient medical devices, and changes in health delivery such as telemedicine contribute to both system resilience and climate footprint reduction. Hospitals are finding that the interventions that enable them to reduce their dependence on large power grids and infrastructure also enable them to better withstand situations, like increased storms, that disable centralized infrastructure.

