



Sustainability

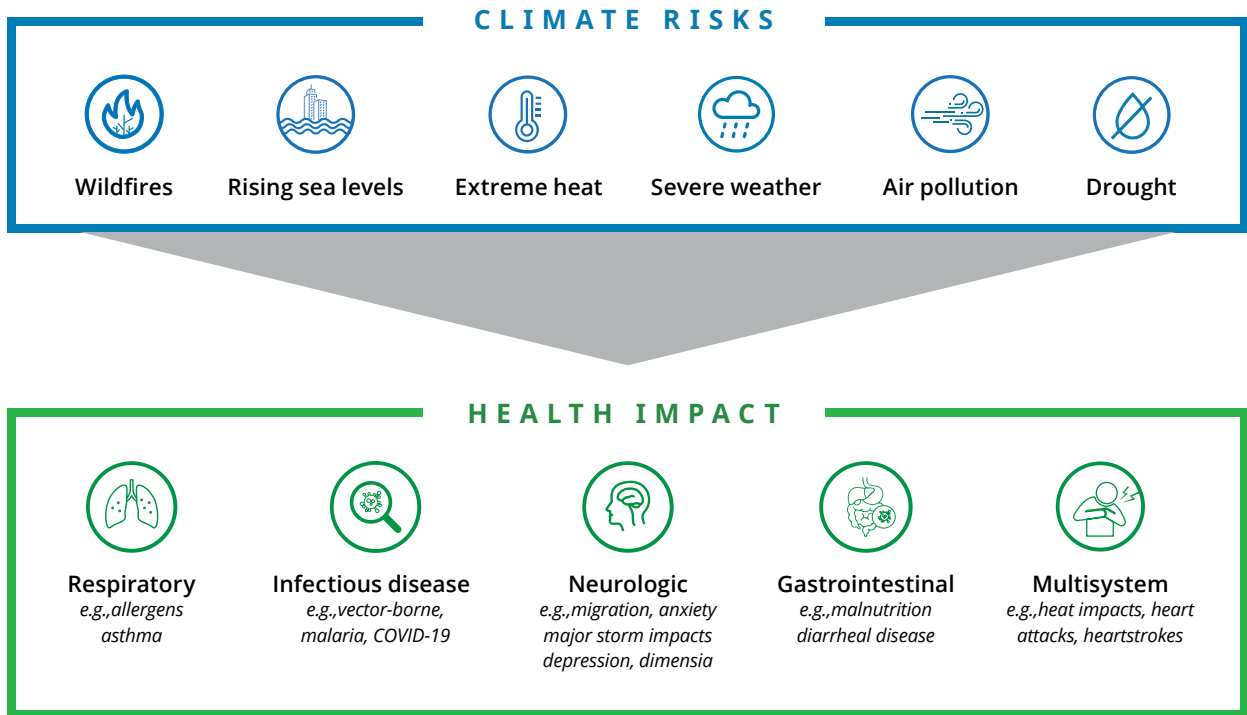
Climate change represents humanity's single greatest health threat, putting clean air, safe drinking water, adequate food supplies and secure shelter at risk on a global scale. Between 2000 and 2016, the number of people worldwide exposed to extreme heat increased by about 125 million. Heatwaves strain health and emergency services, water and energy supplies, and transportation services. Food and livelihood security may also be compromised if people lose their crops or livestock because of extreme heat.¹

Long-term consequences are even more severe. Rising temperatures are expected to cause about a quarter million more deaths worldwide from malnutrition, malaria, diarrhea, and heat stress between 2030 and 2050.²

In addition, higher emissions can trigger weather and environmental issues that, in turn, influence health, such as a greater frequency of drought, wildfires, severe weather, air pollution, extreme heat, and rising sea levels. These, in turn, can lead to an increase in allergens, respiratory distress, and infectious diseases (Figure 1). More than 90 percent of the world breathes unhealthy air, causing 13 million deaths from environmental effects every year.³ It also poses threats to health equity and mental health.⁴ Heat waves, for example, have been linked with increased rates of hospital admissions for mental disorders.

Figure 1. Climate change is a universal risk to human health and well-being

The concentration of carbon dioxide in the atmosphere is the highest in human history. The last nine years all rank among the ten warmest on record according to the National Oceanic and Atmospheric Administration.



Source: Deloitte analysis of scientific studies and IPCC reports.

The cost of these heightened public health risks is estimated to run between USD\$2 billion and USD\$4 billion annually by 2030.⁵ Making matters worse, residents in areas most severely affected by these events often lack the income to move or deal with the consequences of a warming climate.

Responding to these threats requires health systems that are more resilient and sustainable. Health organizations must be prepared to provide care in the wake of natural disasters, ensure the supply of medicine amid weather-related disease outbreaks, and adopt practices that reduce waste.

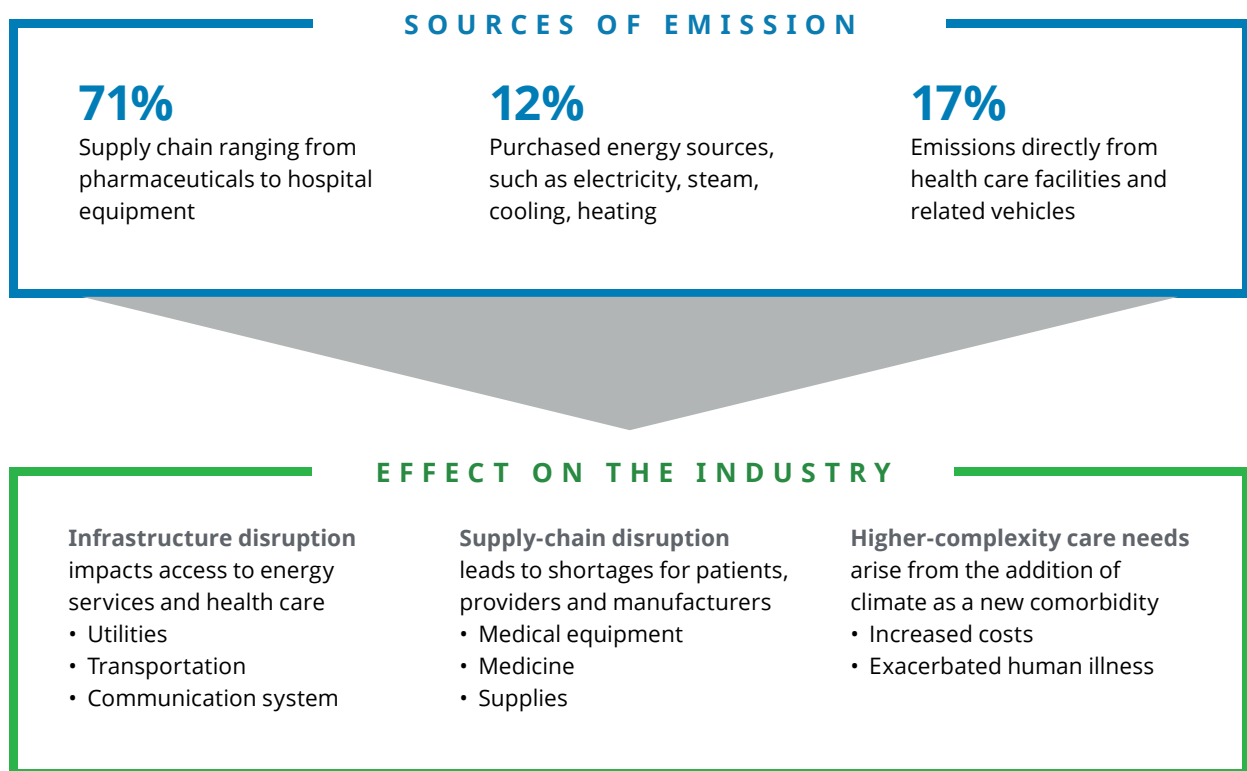
While health organizations bear the burdens of treating the rising number of ailments related to climate change, the impact also affects health care workers themselves. Extreme weather can disrupt operations at hospitals and other facilities through power outages, flooding, and other conditions that inhibit access to care. In addition, health care professionals are likely to experience the physical and mental health demands of climate change more acutely than the general population. As witnessed during the COVID-19 pandemic, rising demand on health care facilities can make their jobs more challenging.⁶

At the same time, the health care sector is examining its own operations, re-evaluating its processes, and adopting goals to reduce its own contribution to a changing climate.

Contributing to rising carbon levels

While treating the health consequences of climate change falls to the global health care sector, they are also a contributor to the rising carbon levels driving climate change. If the global health sector was a country, it would be the fifth-largest global emitter of greenhouse gases, accounting for as much as 5 percent of emissions (Figure 2).⁷

Figure 2. Where US health care firms contribute 8%-10% of total US-based GHG emissions, globally, the sector contributes to 5% of worldwide emissions



Source: Deloitte analysis

About 80 percent of all health care emissions come from supply chains, ranging from pharmaceuticals to hospital equipment. These can be difficult to address because they often result from third parties and involve chemicals, medical devices, and food.⁸ While emissions remain one of the biggest challenges, health care facilities also are looking for ways to reduce waste and boost sustainability. In the US alone, hospitals produce about 6 million tons of waste annually.⁹

COVID-19 also underscored the waste issue. Widespread use of personal protective equipment (PPE) strained health care waste management systems. Almost one-third of PPE could not be safely bagged or stored because of a lack of biohazard bags. The global health care sector generated almost 96 million tons of waste — including more than 28,000 tons of non-hazardous and 67,000 tons of biohazard waste — in its pandemic response.¹⁰

At the same time, supply chains also are vulnerable to disruptions caused by extreme weather or disease outbreaks that can put strains on health care supplies. Making supply chains more sustainable took on added urgency during the COVID-19 pandemic, when clinicians had to reuse masks and gowns, often relying on protocols that hadn't been fully tested, because of supply shortages.¹¹

More providers are adopting recycling and waste management programs, substituting single-use materials with reusable ones where practical and adopting local suppliers where possible to minimize supply disruptions. For example, the Cleveland Clinic procures about 30 percent of its food from local and sustainable sources, and it evaluates its purchases and suppliers for environmental sustainability. It also hopes to divert all its non-hazardous waste from landfills by 2027. Intermountain Healthcare adopted a closed-loop product delivery system that relies on reusable pallets and crates. It also has centralized courier and fleet operations that improve the transportation efficiency to reduce its carbon footprint.¹³

While supply chains represent by far the biggest issues for emissions and sustainability, health care facilities and the power to run them also play a role in health care's carbon footprint.

American hospitals account for about 7 percent of all commercial water consumption and about 10 percent of the total energy used in commercial buildings, at a cost of USD\$8 billion a year.^{14,15} Some have adopted green building standards, installed on-site solar power, boosted energy efficiency, or adopted renewable power purchase agreements.

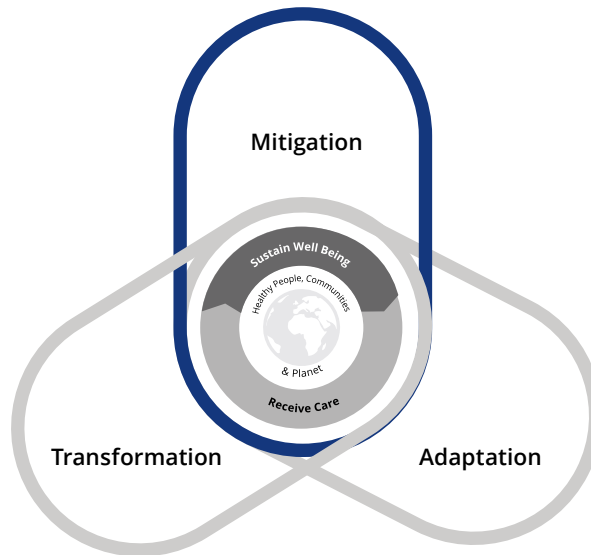
In 2020, Kaiser Permanente became the first US health provider to achieve carbon neutrality by improving the energy efficiency of its buildings, adding on-site solar power, and entering into long-term power-purchase agreements (PPAs) for renewable energy.¹⁶

Other facilities are looking at changes that go beyond energy consumption. Stanford University Medical Center, for example, eliminated 1,200 tons of greenhouse gas emissions by replacing the anesthesia drug desflurane with alternatives such as sevoflurane.¹⁷ Desflurane has more than 3,700 times the global warming potential of carbon dioxide, compared with 350 times for sevoflurane.¹⁸

Likewise, aerosol-propelled asthma inhalers emit 10 to 37 times more carbon than dry-powder alternatives, and currently contribute an estimated 3.9 percent of the carbon footprint of the UK's National Health Service (NHS). Researchers there found that moving to dry powder inhalers would reduce carbon dioxide equivalent emissions by 58 kilotons.¹⁹

Care providers also are looking for improvements in delivery methods, such as virtual care, to reduce emissions from ambulances and private cars traveling to appointments and protect sensitive patients from exposure to air pollutants and allergens (Figure 3). In 2021, CommonSpirit Health reported that its 1.5 million virtual visits conducted during COVID-19 reduced fuel consumption by 1.7 million gallons and reduced emissions by about 15,000 tons.²⁰

Figure 3. Mitigation strategies to reduce operational risks and climate emissions



Providers	Pharma & Medtech	Plans
<p>Low-carbon local urban planning: Design community based care centers to reduce or eliminate carbon-intensive transportation</p> <p>Recycling and waste management: Impliment a program to recycle medical waste safely and efficiently.</p> <p>Virtual and digital care delivery: Increase access to virtual appointments and remote monitoring to reduce transit</p>	<p>Low-emissions manufacturing: Introduce changes to manufacturing processes to efficiency and lower emissions. Explore and implement abatement technologies that can lower emissions footprint of operations.</p> <p>Recycling and waste management: Impliment a program to recycle medical waste safely and efficiently, reducing both waste and energy requirements for prodction.</p> <p>Design sustainable reusable packaging: Partner with pharmacies to reduce the use of plastic packaging associated with drug distribution and creation of packaging return/reuse programs</p>	<p>Virtual and digital care delivery/ incentives: Incentivize members (e.g.,through value based contract terms) to make use of virtual appointments and remote monitoring</p> <p>Evaluate sustainability standards for providers: Establish contracts with provider networks that incentivize sustainability and emission-reduction standards in their facilities and operations</p> <p>hybrid operating models: Design hybrid operating models that balance in-person and virtual work and collaboration between employees to minimize transit and reduce physical footprint</p>

Source: Deloitte analysis of Rock Health Digital Health Funding Database

A lack of policy support

Policy makers are just beginning to support efforts addressing health care emissions. Forty-five countries have committed to reducing health care-related carbon output and making their health systems more sustainable as part of the World Health Organization's COP26 Health Program. Fourteen of the participating countries set a net-zero target date of on or before 2050.²¹

The UK's NHS has reduced emissions by 30 percent since 2010 and has committed to achieving net zero for direct emissions by 2040.²² In 2022, it became the first health organization to embed net zero in legislation, creating a roadmap for other health organizations to follow.²³ It also has been the first organization of its kind to track indirect emissions and develop plans for reducing them, such as relying on virtual care to reduce ambulance use.

While health systems in other countries support climate action, few are following through with coordinated plans. Without policy and regulatory support, bolstered by additional research, effective responses and policy are likely to remain slow. Taking a page from NHS, the Royal Australian College of Physicians recently called for provisions that include a dedicated climate change health resilience fund to support research and innovation, a process for developing climate risk assessments and locally led disaster planning, and a commitment for delivering net zero across the country's health care system by 2040.²⁴

At the COP27 climate change conference in November 2022, the US and NHS announced they would collaborate on procurement requirements to reduce the climate impact of health care supply chains in both countries.²⁵

However, few priorities are being set globally, and still lacking is a comprehensive policy to address the disproportionate impact on people who are already the most vulnerable to climate risks.

Without broad policy requirements, companies and organizations are charting their own courses. In some cases, health leaders are championing internal policies for emission reductions and greater sustainability, thereby making the policies more visible for both health care workers and patients. Massachusetts General Hospital, for example, founded the Center for the Environment and Health, the first health institution-based center aimed at incorporating sustainability into all aspects of the hospital.²⁶

But the challenge to building greater resiliency and sustainability into global health care systems remain. As climate risks mount, providers face the challenge of maintaining the quality of care in the face of mounting financial pressure. What's more, a changing climate requires greater disaster preparedness, especially in economically disadvantaged regions, whether it's ensuring medicine can get to affected areas or mitigating the effects of rising temperatures on the workforce.

Tracking progress on sustainability

Deloitte established a strategic partnership with the Geneva Sustainability Centre and the International Hospital Federation to improve sustainability in the health care sector.

As part of this effort, we built the Sustainability Accelerator Tool, which is designed for health care leaders to track their progress toward delivering low-carbon and resilient care in an equitable manner.

The tool has three domains: (1) environmental impact, (2) health, equity, and wellbeing, and (3) leadership and governance (Figure 4).

Figure 4



1) Environmental Impact

Efforts to:

- **Reduce the environmental** footprint of your organization and ecosystem.
- **Build resilience** to climate change impacts
- **Transform to low carbon care** through operational services and clinical practice



2) Health, Equity and Wellbeing

Efforts to:

- **Assess the vulnerabilities in communities** to better target services
- **Deliver health and prevention services** in an equity-based way that support mental and physical well-being
- **Prevent ill health** and positively influence environmental and social determinants of health



3) Leadership and governance

Efforts to:

- **Ensures structures and practices** are in place to promote leadership accountability and reporting
- **Engage and empower employees** to act on sustainability issues
- **Act collaboratively** across the communities and with relevant stakeholders

Each domain has a series of questions that have been carefully selected for health care organizations to:

- assess strengths of current position,
- understand what low, medium, and high maturity means,
- track progress,
- compare themselves to peer hospitals through international benchmarking,
- share and collaborate with other organizations to learn quickly,
- develop a globally consistent way of describing and measuring progress, and
- provide robust data for accreditation.

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Interested in learning more about the sustainability and its impact on global health care? Check out these Deloitte publications:

[Why climate resilience is key to building the health care organization of the future?](#)

[Building Climate Resilience](#)

Acknowledgements

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