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Reduce, Reuse, Recycle?

What Stakeholders Are Doing to Achieve Healthcare Sustainability

Healthcare sustainability is becoming an operational imperative for healthcare systems, hospitals, and provider organizations of varying sizes. From care settings to supply chain, let's review the landscape that spans educational resources, certifying organizations, and government initiatives in place today, as well as the metrics behind the goals that inform environmental, social, and governance (ESG) plans that healthcare institutions and entities are devising for the future.

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Healthcare Ecosystem

National Geographic's definition of ecosystem is "a geographic area where plants, animals, and other organisms, as well as weather and landscape, work together to form a bubble of life." It goes on to discuss the fragility of ecosystems, and the essential domino effect that humans can exact on such a bubble.[1] Healthcare in the U.S. has been described as an ecosystem, but its interplay with the environment is more complex and vast than any Venn diagram could depict. Built for patient care delivery, it runs on fossil fuels, emits metric tons of carbon dioxide, depends on shipping and transport systems, and produces football fields of medical, packaging, and food waste. In fact, the U.S. healthcare system is the top contributor of greenhouse gas (GHG) emissions (see Figure 1).[2] What's more, data support that GHG emissions contribute to adverse public health outcomes.

The Leading Public Health Issue of the Century

Health problems stemming from climate change—the result of rapidly rising GHG emissions[3]—kill millions of people annually.[4] Heat related stress, acute myocardial events, cerebrovascular events, exacerbations of asthma and COPD from air pollution, and a rise in hospitable habitats for vector borne diseases are all attributed to climate change, which has been called the leading public health issue of the 21st century.[5] Severe weather and the resultant flooding, wildfires, and the disturbances of food supply are also implications of climate change, and the public health crisis. It can be seen as a vicious cycle, considering that these weather events impede physical access to care facilities for patients and care givers, and disrupt the supply chain of needed healthcare goods and services.[5]

Impact of Climate Change on Healthcare

Rising GHG Emissions

Severe Weather Events
Disrupted Food Supply
Vector-borne Disease Spread

Patient Health Risks

Heart Attacks & Strokes
Asthma/COPD Exacerbations
Increased Infectious Diseases

Supply Chain Crisis

Limited Access to Care Facilities
Disrupted Healthcare Goods
Impeded Services for Patients

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Healthcare Sustainability Under the Patient Safety Umbrella

"As medical professionals our commitment is to 'first, do no harm.' Places of healing should be leading the way, not contributing to the burden of disease," according to Tedros Adhanom Ghebreyesus, Director General, World Health Organization (WHO). Ghebreyesus sums up the irony of the global healthcare system that contributes to deadly climate change in "Health Care's Climate Footprint," published by the global nonprofit Health Care Without Harm.[6]

In the U.S., the deleterious effects of GHG emissions is on par with quantified medical errors, attributed to 388,000 disability adjusted life years in 2018. To reiterate this point, Matthew J. Eckelman and colleagues write that "Despite some improvement, this disease burden is still within the same order of magnitude as years of life lost as a result of deaths from preventable medical errors, and it remains a concerning issue for health care safety, quality, and cost containment efforts."[2]

The Scope of the Problem

Eckelman and colleagues calculate U.S. healthcare sector emissions from 2010-2018, using an EPA model, broken down by three scopes, as defined by the Greenhouse Gas Protocol, a global accounting system that categorizes GHG emissions as follows:[7]

SCOPE 1:
Direct emissions from hospitals and other healthcare sectors

SCOPE 2:
Direct emissions from purchased electricity for operational use

SCOPE 3:
Indirect emissions from employee travel and commuting, waste disposal, medical devices and equipment, and pharmaceuticals

According to Eckelman and colleagues, scopes 1 and 2 account for not quite 20% of emissions. (See Figure 2). U.S. hospitals are responsible for 7% of GHG, attributable to 24/7 operations, HVAC requirements, and diagnostic and therapeutic medical equipment. The figure excludes waste anesthetic gases and metered dose inhalers, even though these are contributors within this scope. Scope 2 represents purchased energy from utilities. Within scope 3, the U.S. healthcare supply chain is responsible for 82% of the sector's carbon footprint.[2]

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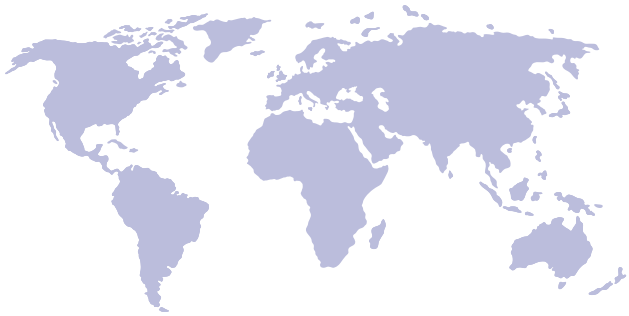
The Scope of the Problem (Cont'd)

Figure 1: Healthcare and Greenhouse Gas



Globally, the **healthcare industry** is responsible for greenhouse gas (GHG) emissions and toxic air pollutants, contributing up to

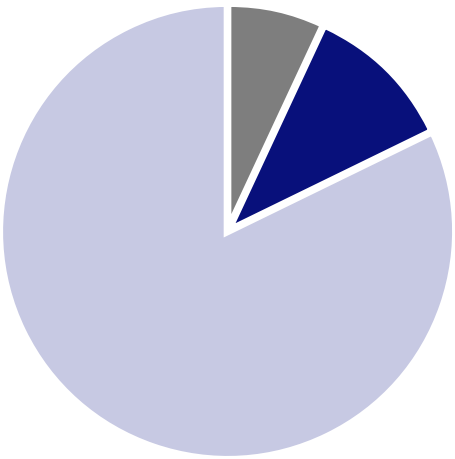
4.6%[2]

25% The **U.S. healthcare system** is responsible for nearly a quarter of global healthcare GHG emissions—more than any other nation.[2]

8.5% The **U.S. healthcare system** is responsible for 8.5% of domestic GHG emissions.[2]

80% The **U.S. healthcare supply chain** is responsible for more than 80% of the domestic GHG in the U.S. healthcare sector.[2]

Figure 2: U.S. Healthcare GHG Breakdown



7%
Hospital Operations

11%
Purchased Energy

82%
Supply Chain

Adapted from Eckelman MJ, Huang K, Lagasse R, et al.[2]

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U.S. Healthcare Decarbonization Initiatives

Global as well as national efforts are afoot to decarbonize the healthcare system. In 2021, 60 countries, including the U.S., committed to more sustainable health systems as part of the United Nations Climate Change Conference. The U.K.'s National Health Service (NHS) was first, launching its Greener NHS program in October 2020.[8]

The U.S. Department of Health and Human Services and the Biden Administration launched the Health Sector Climate Pledge in April 2022.[9] By June 2022, the White House announced that 61 of the largest U.S. hospitals and health sector companies responded to the pledge, comprising 650 hospitals and thousands of other providers who plan to strengthen resilience to climate change, protect public health, and lower costs. The goal is to reduce nationwide GHG emissions 50-52% by 2030, using 2008 as a baseline, and to reach net-zero emissions (using equivalent energy from the utility grid that is provided by onsite renewable sources) by 2050.[10,11]

NOTE: See "Toolkits, calculators and tips"sidebar on page 8 to find facility resources for sustainability.

> **"In the U.S., an increasing number of medtech customers expect to formally include diversity, equity, and inclusion; material use, waste, and circularity; and air quality in their purchasing criteria."**
>
> *Bain & Company Survey*

Deadly, Costly Problems and the ESG Solution

The rise of GHG emissions isn't just deadly, it is expensive. The WHO estimates the direct damage to health will cost $2 billion to $4 billion a year by 2030.[16] The American Hospital Association adds that on a facility level, in 2020 alone, 22 climate-related disasters caused over $111 billion in losses, and that within the last five years, a total of 86 "billion-dollar events" have totaled $451 billion.[11]

Rising casualties and costs, coupled with government and investor pressures, have fueled the trend in environmental, social, and governance (ESG) initiatives across the healthcare sector. Pharmaceutical and medtech companies have joined the ranks, given their GHG contributions on the supply chain side.

ESG initiatives also answer a call from customers. A survey conducted by Bain & Company indicated that 75% of healthcare procurement decision makers in the U.S. and 82% in Germany anticipate the importance of ESG in purchasing criteria to increase within five years (N=65). "In the U.S., an increasing number of medtech customers expect to formally include diversity, equity, and inclusion; material use, waste, and circularity; and air quality in their purchasing criteria," the survey authors observed.[17]

NOTE: See "The ESG backlash" sidebar on page 10.

Continued on next page.

Olympus on the Green

On the medtech front, Olympus Corporation, Inc. has been enhancing ESG initiatives to meet the needs of its customers: healthcare providers and their patients. Olympus designated an ESG officer in 2021, setting key performance indicator (KPI) initiatives for medium to long-range business plans, including 10% of executive officers' long-term incentive compensation, based on ESG evaluation by an external organization.[18]

In May 2021, Olympus added "carbon neutral society and circular economy" to its materiality, items of ESG areas and initiatives, and set ambitious targets such as achieving carbon neutrality by 2030. In May 2023, Olympus committed to a goal of net zero GHG emissions by 2040. Efforts toward this goal include:[18]

- **Adopting renewable energy in site operations**
- **Improving operational logistics efficiencies in shipping**
- **Developing environmentally conscious products**
- **Setting voluntary reduction targets with suppliers to support decarbonization initiatives**

Olympus has made sustainability one of its top-three priorities under the company's formal ESG system established in April 2023. Renewable energy sustainability achievements of note in its 2023 report include:[18]

- **Environmentally conscious cars in company fleet**
- **Solar power operation in Redmond, CA**
- **Static electricity removal sheets in AC systems to improve operating efficiency**

On the waste reduction front, in Japan, Olympus reports using less corrugated cardboard by making products without packaging, or using reusable containers. In the U.S., the company is rolling out various recycling programs.[18]

The Olympus ESG workgroup has been actively attending sustainability conferences, events and seminars, working on 2024 targets to chip away at GHG emissions, maintain ISO 14001 certifications (standards for environmental management systems), and working toward environmentally conscious product lifecycles, among other measures.[18] In June 2024, the workgroup announced internally that they were actively working on three initiatives: electronic IFUs, packaging design, and product life cycle assessment.[19]

Olympus has been named to the Dow Jones Sustainability World Index (DJSI World) for three consecutive years, as of December 2023, and the Dow Jones Sustainability Asia Pacific Index for five years. Olympus is one of only seven medtech companies—out of 76 healthcare companies—to have been included in the DJSI World Health Care Equipment & Supplies sector.[20]

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Partnering Through Healthcare Climate Conditions

The Olympus Enterprise Solutions team works with a range of provider partners from ASCs to IDNs and GPOs that share a common goal of improving patient outcomes and overall quality of life. To that end, stay tuned for additional efforts on the Olympus front, as the company takes on the myriad issues of environmental sustainability, continuing to bake them into its original company mission of making people's lives healthier, safer, and more fulfilling. And if your team needs help navigating the current healthcare market climate conditions, we are here to partner in that mission with you.

Solutions Centered Around You

Earning Your Trust

Understanding Your Needs
Providing Value

Enhancing Your Experience

Empowering Decision-makers
Going Beyond the Product

Delivering Value

Optimizing Clinical and
Economic Value

At Olympus, we are committed to Our Purpose of making people's lives healthier, safer and more fulfilling. We are passionate about the medical technologies and solutions that we bring to the world that help detect and treat disease. We are invested in great ideas that serve you and the vibrant communities around us.

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SIDEBAR: Toolkits, Calculators and Tips

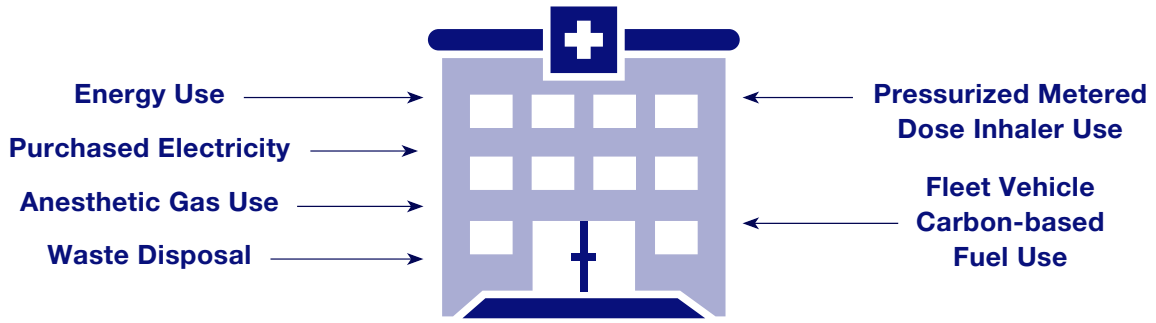
Hospital organizations, nonprofits and government agencies have all stepped in to guide healthcare providers on ways to tackle greenhouse gas (GHG) emission reduction goals. Some noteworthy resources include:

- The American Hospital Association (AHA) published "The Health Care Leader's Guide to Sustainability and Decarbonization," a toolkit of terms and steps that C-suite hospital leaders can follow to make the business case for sustainability by developing a strong environmental, social and governance (ESG) proposition supported by metrics related to top-line growth, cost reductions, and productivity uplift. AHA reported that 3,500 facilities are tracking emissions associated with facility energy consumption in the Energy to Care Dashboard, a free tool offered by the American Society for Health Care Engineering that can track the majority of scope 1 and 2 facility emissions.[11]

- Practice Greenhealth, a healthcare membership and networking organization, offers Health Care Emissions Impact Calculator 2.0, an accounting tool in its second phase of launch designed to help organizations measure GHG emissions across scopes 1, 2, and 3.[12] The same organization has also published Sustainable Procurement in Health Care Guide, a comprehensive overview of how to develop a sustainable procurement program in a healthcare organization, with sample contracts, real-world examples, tips on monitoring progress and more.[13]

- The Agency for Healthcare Research and Quality partnered with the Institute for Healthcare Improvement to publish "Reducing Healthcare Carbon Emissions," a primer to assist healthcare organizations on their decarbonization journey. The paper recommends starting out with pilot programs at specific sites, determining core and elective measures and key strategies. It also offers "illustrative vignettes" of facility efforts such as solar-powered microgrid installations, switching metered dose inhalers to lower emissions intensity inhalers for appropriate patients, and a program to donate food in efforts to reduce food waste.[14]

- U.S. hospitals can also opt for sustainability certification through the Joint Commission. Sustainable Healthcare Certification was announced in September 2023 as a voluntary program effective January 1, 2024. The certification is said to provide a framework for creating baselines, measuring, and documenting GHG. Organizations that seek certification will be required to collect data on three of the following types of GHG emission:[15]



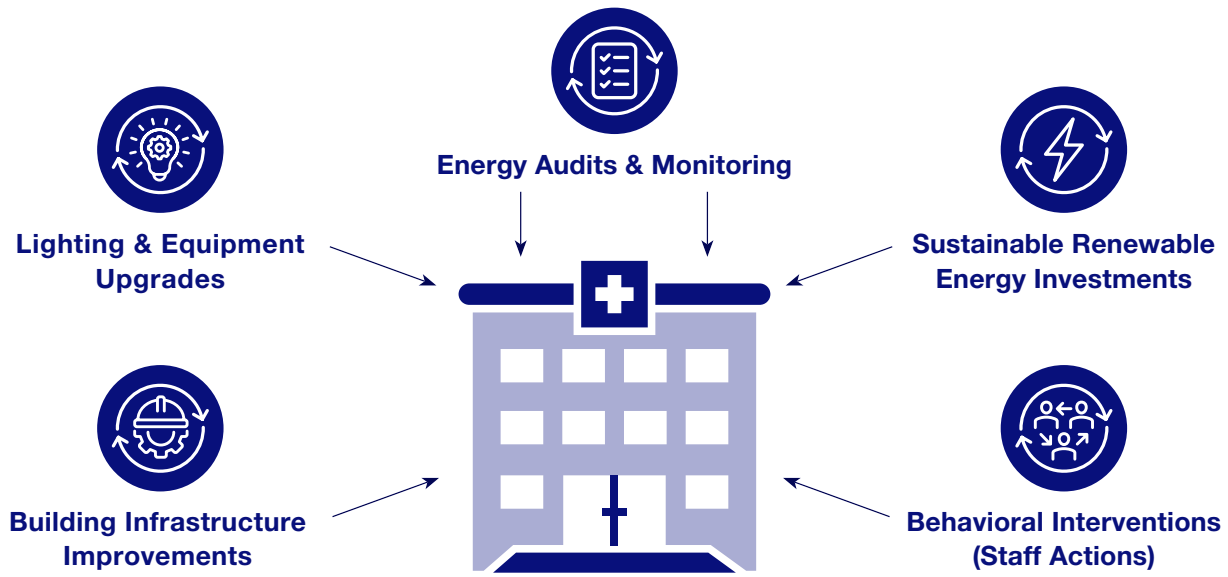
The Joint Commission makes a case for cost savings, improved health outcomes, regulatory compliance, and risk mitigation.[15]

SIDEBAR: Energy Efficiency—Low Hanging Fruit for Hospitals

Hospitals have large ecological footprints as energy intensive buildings, running 24/7 while serving thousands of employees, patients, and visitors. According to Chen-Xu and colleagues, low hanging fruit is everywhere in the hospital setting when it comes to reducing energy output. These authors suggest the following action items:[23]

- Conduct an audit of energy consumption to set a baseline for benchmarking.
- Use energy efficient LED light bulbs.
- Use sensors, actuators, where possible.
- Use an energy monitoring system to track energy.
- Make infrastructural changes, such as insulation on external exposed walls.
- Upgrade medical equipment: Use of smart technology could increase energy efficiency.
- Invest in solar panels for sanitary hot water production.
- Upgrade boilers and ensure regular service of boilers to maximize efficient energy use.
- Upgrade HVAC systems to maximize energy efficiency.
- Use heat pumps, which, together with thermal isolation, reduces natural gas consumption used for heating water, for example.
- Invest in renewable sources of energy for heating, cooling, and electricity generation. Examples include solar photovoltaic energy, solar thermal energy, biomass, and geothermal energy.
- Consider combined energy systems. Examples include cogeneration, which produces electricity and heat; and trigeneration, which produces electrical energy, thermal energy in the form of heat, and thermal energy in the form of cold.
- Employ educational interventions. Front line staff can make a difference by turning off lights or powering down devices when not in use.

Energy Efficiency Strategies for Reducing Hospital Ecological Footprints



These authors reference anecdotal evidence of cost savings but acknowledge that further research is required to accurately demonstrate the return on investment for energy-saving measures.[23]

SIDEBAR: The ESG Backlash

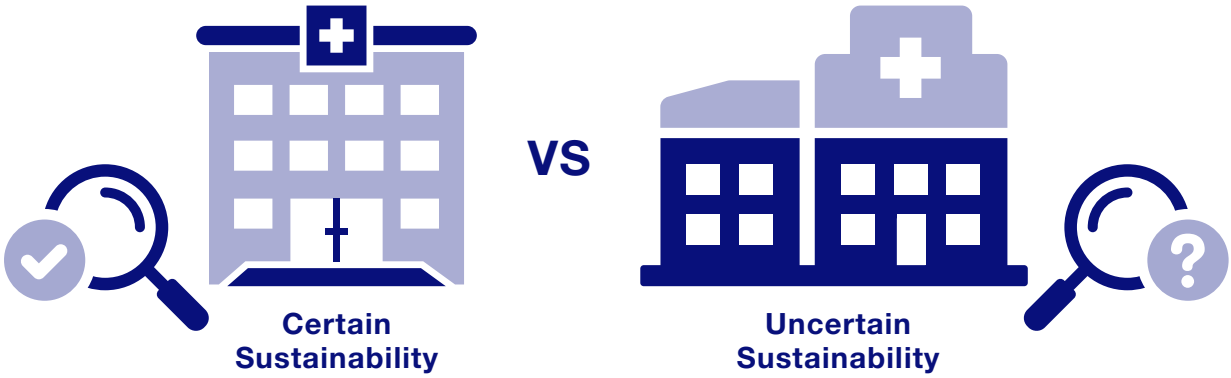
Recycling, investing in renewable energy, and other sustainability activities are all part of an environmental, social, and governance (ESG) initiative. Outside of healthcare, some business and industry greenhouse gas emission contributors have faced ESG backlash in making a business case for these efforts.

"Think of it like this: I can show you two eggs and tell you one is sustainable — but you can't tell which by looking at them," wrote Gregory C. Unruh in *Harvard Business Review*. At issue is the "intangible value" of ESG efforts, he argues, adding that executive boards need to "tagibilize" ESG initiatives for buy in.[21]

But in another *HBR* article, a poll of 1,000 investors found that despite some conservative-minded bristling over environmental language within ESGs, "most investors now clearly associate climate action and the clean energy transition more closely with business performance than with political advocacy."[22]

In any industry, experts agree that it comes down to the right partner to help achieve goals that matter most. In healthcare that tends to—or at least should—come down to patient care.

ESG Initiatives: Bridging Sustainability and Business Success



Environmental — Social — Governance

Tagibilized sustainability efforts that are linked to clear metrics such as cost savings, improved efficiency, and environmental benefits, allows executives, investors, and others to see the real impact and business value of those initiatives.

> **"Think of it like this: I can show you two eggs and tell you one is sustainable — but you can't tell which by looking at them."**
>
> *Gregory C. Unruh*

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