HEALTH CARE AND THE CLIMATE CRISIS: PREPARING AMERICA'S HEALTH CARE INFRASTRUCTURE

I. The Significance of Addressing Climate Impacts in the Health Sector

This is the first part of a Majority Staff Report on the U.S. health system and the climate crisis. The following part provides an overview of the problem, description of Chair Neal's 2022 Request for Information (RFI), and summary statistics from an analysis of survey respondents. Part Two examines how the climate crisis and the prevalence of extreme weather events impact health care organizations – and what they are doing to respond and prepare for future events. Part Three describes how health care organizations are assessing their climate impact and working to reduce their respective carbon footprints. Part Four summarizes findings and provides a discussion of implications. Part Five is an appendix with survey methodology, limitations, and supplemental tables.

PART ONE: KEY FINDINGS

Summary: The U.S. health care system is responsible for an estimated 10 percent of national greenhouse gas emissions, which retain heat in the atmosphere, causing extreme weather events and contributing to worse population health outcomes. Providers, suppliers, and other actors in the health sector have a role to play in curbing emissions and ensuring they are appropriately prepared for increasing climate-related events that will inevitably disrupt operations. Ultimately, such steps have the potential to not only improve health but also provide cost-saving opportunities. Sixty-three providers from across the country and 13 trade associations representing members across the care continuum provided insights to the Ways and Means Committee about how they are preparing for extreme weather events and reducing their carbon footprint to produce a healthier America.

- The U.S. health care industry's impact on national climate pollution is substantial, representing 12 percent of acid rain, 10 percent of smog formation, nine percent of criteria air pollutants, one percent of stratospheric ozone depletion, and one to two percent of carcinogenic and non-carcinogenic air toxins.
- Moving the U.S. health care industry toward climate resiliency and sustainability has the potential to not only better prepare the health care system for extreme weather events and decrease the health sector's environmental impact, but it also has potential financial benefits, providing cost savings (e.g., through energy or water conservation), reducing risks, and improving measures of corporate performance.
- Beginning in March 2022, Committee on Ways and Means Chair Richard E. Neal sent out a RFI to hospitals, health systems, and other health providers to better understand how climate events have impacted the health sector, as well as steps the health care industry is taking to address its role in mitigating the climate crisis.
- In total, the Committee received and analyzed responses from 63 providers across the country, representing, health systems, dialysis companies, nursing home corporations, and community health centers, among others. Fourteen of the total 63 respondents were classified as "climate innovators" – providers the Committee had previously engaged with and targeted for their existing climate programs.
- The Committee also received responses from 13 trade associations representing members that spanned the continuum of care.

> ***"Our nation's health care sector strives to keep people healthy, and that includes protecting Americans from the impacts of the climate crisis."***
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> **— Chair Richard E. Neal, Request for Information, March 24, 2022**

The impact of the climate crisis on health is well documented – from increasing rates of asthma in vulnerable communities to increases in deaths from extreme weather events, infectious and vector-borne diseases, and compromised food supplies. Across the globe, the consequences of the climate crisis accrue inequitably, severely impacting the most vulnerable and marginalized among us based on gender, age, race, socioeconomic status, and disability status, among others.[1] On a macro level, wealthier countries are more likely to emit harmful greenhouse gases (GHGs) than poorer countries but are among the least vulnerable to the negative impacts of the climate crisis.[2] Pollution alone is responsible for one in six deaths globally.[3] The health care industry, developed as a means to keep populations healthy, has, paradoxically, contributed to these climate-driven poor health outcomes. Totaled together, if the global health sector were a country, it would be the fifth-largest emitter on the planet.[4]

As GHG emissions trap more heat in the earth's atmosphere, global temperatures rise, in turn, increasing the severity and intensity of climate-related natural disasters.[5] Each decade since the 1980s has been warmer than the previous one, and the seven warmest years ever recorded have all occurred since 2015.[6] The year 2021 was the seventh consecutive year where the global average temperature was more than one degree Celsius above pre-industrial levels.[7] Because of this, 196 countries throughout the world, including the United States (U.S.), signed the Paris Agreement in 2015 to limit GHG emissions in an effort to prevent global temperature-rise of 1.5 to two degrees Celsius (compared to pre-industrial levels) to avoid catastrophic impacts to life on Earth.[8]

The U.S. health care sector represents 19.7 percent of U.S. gross domestic product, totaling $4.1 trillion in spending, with half of the revenue sourced from federal, state, and local government funding.[9], [10] Its impact on national climate pollution is similarly substantial, representing 12 percent of acid rain, 10 percent of smog formation, nine percent of criteria air pollutants, one percent of stratospheric ozone depletion, and one to two percent of carcinogenic and non-carcinogenic air toxins.[11] With U.S. GHG emissions rising by an estimated six percent between 2010 and 2018 – resulting in the loss of 388,000 disability-adjusted life-years – all participants in the health care sector have important roles to play in addressing the climate crisis and environmental justice.[12] As health care providers work to reduce heath inequities, their response to the climate crisis is a vital consideration, as the burden of pollution falls disproportionately on communities of color, who are exposed to far more than they produce.[13]

Impact of the Climate Crisis on Health Care Delivery

98,000

Number of estimated annual deaths attributed to the U.S. health care industry's emissions alone.[14]

114

Number of climate-related hospital evacuations between 2000 and 2017 in the U.S., more than half required the evacuation of over 100 patients.[15]

820

Annual cost, in billions, of air pollution and the climate crisis on the U.S. health care system.[16]

843

Number of nursing home patients in Louisiana, who had to be evacuated due to temporary nursing home closures caused by Hurricane Ida.[17]

Other U.S. industries and international health systems – as well as some U.S.-based health systems –have begun to address their responsibility to the climate by measuring and publicly reporting their impacts, often through the disclosure of environmental, social, and governance data (ESG reporting). More than 90 percent of Standard and Poor's 500 U.S. Index Companies (S&P 500) already publish annual sustainability reports.[18] A new U.S. Securities and Exchange Commission proposed rule built on this precedent by seeking to standardize climate-related disclosures for investors.[19]

Internationally, with England leading the charge, 13 additional countries at the United Nations' 2021 Climate Change Conference of the Parties (COP26) pledged to cut all carbon emissions from the health sector by 2050, including Belgium, Fiji, Indonesia, Jordan, Kenya, Malawi, Morocco, Nigeria, Peru, São Tomé and Príncipe, Sierra Leone, Spain, and Yemen.[20] England's National Health Service (NHS) has the first national government-mandated carbon-reduction initiative aimed specifically at the health sector.[21] The NHS is aiming to reach zero carbon emissions by 2040 for the emissions it controls directly and net zero by 2045 for the indirect emissions the NHS has the ability to influence.[22] Specifically for the emissions not directly under NHS control, the NHS will use its purchasing power from product procurement to influence and reduce emissions from its over 80,000 suppliers.[23] The NHS has already reduced its carbon emissions by 18.5 percent (2007-2017) and water usage by 21 percent (2010-2017), showing that change is possible.[24]

Though not as far along as England, other countries are taking steps to combat emissions. For example, in Norway, a Public Procurement Law requires public entities to adapt their procurement practices to reduce environmental impacts, promote climate friendly solutions, and protect human rights, influencing the practices of the health care supply chain.[25] The Indian state of Chhattisgarh electrified 900 of its health centers and hospitals with solar energy, saving 80 percent on energy costs and paving the way for the rest of the country to follow suit.[26] More than 175 hospitals in Argentina, Brazil, Chile, Colombia, and Costa Rica have taken steps to measure their GHG emissions and implement strategies to reduce their carbon footprints.[27] In Australia, the state of Victoria requires the public health service to regularly report standardized environmental impact measures.[28] In conjunction with the United Nations' Solar for Health Program, Zimbabwe has installed solar panels in over 400 health centers across the country – an

initiative that has not only reduced emissions but also built resiliency and ensured more consistent access to electricity.[29]

As the following parts of this Majority Staff Report show, health system leaders in the U.S. have also emerged, providing a clear business case for moving toward more sustainable operations. Moving the U.S. health care industry toward climate resiliency and sustainability has the potential to not only better prepare all health care stakeholders for extreme weather events and decrease the health sector's environmental impact, but it also has potential financial benefits, providing cost savings (e.g., through energy or water conservation), reducing risks, and improving measures of corporate performance.[30]

Federal efforts to address these climate-related possibilities in the health sector are also underway. On January 27, 2021, President Biden signed the Executive Order on Tackling the Climate Crisis at Home and Abroad, recommitting the U.S. to tackling the climate crisis.[31] In conjunction with President Biden's executive order, The U.S. Department of Health & Human Services (HHS) created the Office of Climate Change and Health Equity in August 2021, which invited the health care sector to commit to cutting GHG emissions by 50 percent by 2030 and achieve next zero by 2050.[32] Further, HHS published its own Request for Information (RFI), Current Assessment of climate Change Impacts on Outcomes, Care, and Health Equity, to better understand how providers can prepare for the harmful impacts of the climate crisis on May 10, 2022, through the Federal Register.[33]

KEY DEFINITIONS

Climate crisis: *Serious problems that are being caused or likely to be caused by changes in the world's weather – in particular the warming of the world due to human activity increasing the level of carbon dioxide (CO2) in the atmosphere.[34]*

Environmental justice*: The fair treatment and meaningful involvement of all people with respect to the environment and climate regardless of race, color, national origin, or income in the development, implementation, and enforcement of environmental laws, regulations, and policies. Also incorporates the same degree of protection from environmental and health hazards and equal access to the decision-making process, enabling all to have a healthy environment in which to live, learn, and work. [35] For more information related to Ways and Means Environmental justice policy pillars, please see A Bold Vision for a Legislative Path Toward Health and Economic Equity.*

Greenhouse gases*: Gases that trap heat in the earth's atmosphere (e.g., CO2 (79 percent of U.S. GHG emissions in 2020, produced through burning fossil fuels, solid waste, etc.), methane (CH4, emitted in the production and transportation of coal, natural gas, and oil), nitrous oxide (N2O, a biproduct of fuel combustion), and fluorinated gases (emitted from a variety of household, commercial, and industrial applications and processes)).[36]*

Greenhouse gas (GHG) emissions:

- ***Scope 1:*** *Direct emissions from sources that are owned or controlled by the entity, including on-site fossil fuel combustion and fleet fuel consumption (e.g., fugitive emissions like waste anesthetic gases in health care).[37]*
  - *Represents seven percent of total U.S. health sector emissions.[38]*
- ***Scope 2:*** *Indirect emissions from sources that are owned or controlled by the entity, including emissions that result from the generation of electricity, heat or steam purchased by the entity from a utility provider.*
  - *Represents 11 percent of total U.S. health sector emissions.[39]*
- ***Scope 3:*** *Emissions from sources not owned or directly controlled by the entity but related to entity activities, such as supply chain emissions, employee travel and commuting, solid waste disposal and wastewater treatment, and emissions from transportation and distribution losses associated with purchased electricity.[40]*
  - *Represents 82 percent of total U.S. health sector emissions.[41]*

OVERVIEW AND PURPOSE

Given the limited information available on the U.S. health care system's impact on the climate crisis and actions to address it from individual provider and supply chain levels, in March 2022, Committee on Ways and Means Chair Richard E. Neal sent out a RFI to hospitals, health systems, and other health providers to better understand how climate events have impacted the health sector, as well as steps the health care sector is taking to address its role in mitigating the climate crisis. Chair Neal issued the RFI to providers in two phases: The first went to 14 health systems across the U.S. that the Committee learned had been previously engaging in climate initiatives (dubbed "climate innovators" for the purposes of this report), while the second wave went to members of provider trade associations across the continuum of care (deemed "providers" for the purposes of this part series).[1] Specifically, the Chair asked these trade

[1] The Committee recognizes that it was unable to capture all climate "innovators" in its initial RFI. The descriptor of simply "provider" for the second group is not meant to diminish any innovative activities those organizations have undertaken. Rather, it was a means for categorizing and organizing data for the purposes of analysis.

associations – representing over 25,000 health facilities nationally – to work with the Committee to solicit feedback from a sample of member organizations. Separately, Chair Neal requested provider trade associations fill out their own survey related to the work they currently have underway to support their members in addressing their climate impacts. Finally, in July 2022, the Chair expanded the RFI to group purchasing organizations (GPOs) to better understand the role of the health care supply chain (these findings will be presented separately in forthcoming parts). Find a full list of respondents HERE.

Broadly, the purpose of the RFI was to solicit feedback from a wide group of health care stakeholders to understand the current range of approaches being undertaken across the country to address the climate crisis – both impacts of extreme weather events on operations and approaches to curbing GHG emissions. The survey instrument was created to inform the RFI based on a review of the extant literature, expert input, and discussions with a sampling of providers already engaged in climate-related activities. Ultimately, Chair Neal's RFI sought to expand public understanding of the range of responses to the climate crisis and pinpoint places where the government – federal, state, and local – can engage on these issues to ensure the U.S. health system remains resilient in the face of increasing extreme weather events while curbing its carbon footprint. *For a detailed summary of the methodology employed in survey development and the creation of an analytic plan, please see Part Five of this report.*

SUMMARY STATISTICS

As shown in Table 1, relative to the provider group, climate innovators were more likely to be a health system or multi-hospital health system; all included at least one teaching hospital and nearly all included at least one urban hospital and disproportionate share hospital. All climate innovators said they had a GPO. On the other hand, community health centers made up more than 50 percent of the provider group and only half worked with a GPO. Both groups were composed of primarily non-profit entities with wide geographic spread. As shown in Table 2, the trade association respondents represented members from across the country and across the continuum of care, with the exception of freestanding dialysis services.

Subsequent parts will provide an analysis of responses to the climate-related survey questions.

Table 1. Characteristics of Respondents: Climate Innovators and Providers

Variables	Climate Innovators (n=14)	Providers (n=49)
Primary Organization Type		
Multi-hospital Health System*	64.3%	16.7%
Health System*	35.7%	14.6%
Multi-Facility Dialysis Company	0.0%	4.2%
Nursing Home Corporation	0.0%	4.2%
Community Health Center	0.0%	54.2%
Other	0.0%	6.3%

Facility Types in Organization†		
Urban Hospital	92.9%	25.0%
Rural Hospital	71.4%	10.4%
Teaching Hospital	100.0%	27.1%
Disproportionate Share Hospital	85.7%	12.5%
Specialty Hospital	57.1%	4.2%
Critical Access Hospital	50.0%	6.3%
Inpatient Rehab or LTC Hospital	71.4%	16.7%
Skilled Nursing Facility or Nursing Facility	64.3%	10.4%
Dialysis Center	42.9%	8.3%
Regions of Operation†		
New England (CT, ME, MA, NH, RI, VT)	14.3%	8.3%
Mid Atlantic (NJ, NY, PA)	28.6%	8.3%
East North Central (IL, IN, MI, OH, WI)	42.9%	12.5%
West North Central (IA, KS, MN, MO, NE, ND, SD)	35.7%	10.4%
South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)	35.7%	35.7%
East South Central (AL, KY, MS, TN)	14.3%	6.3%
West South Central (AR, LA, OK, TX)	21.4%	14.6%
Mountain (AZ, CO, ID, MT, NV, NM, UT, WY)	42.9%	16.7%
Pacific (AK, CA, HI, OR, WA)	28.6%	25.0%
US Territories	0.0%	8.3%
Outside US	21.4%	4.2%
Ownership Type		
For-profit	7.1%	14.6%
Government-owned	0.0%	10.4%
Non-profit	92.9%	75.0%
Group Purchasing Organization (GPO)		
Has GPO	100.0%	53.3%

† Hospital types and regions are multi-response questions. These percentages, therefore, do not add up to 100 percent.
*Multi-hospital system refers to a system where two or more hospitals are owned by the same organization; hospital system refers to a system with at least one hospital and at least one group of physicians in one organization.

Table 2. Characteristics of Respondents: Trade Associations

Variables	Trade Associations (n=13)
Facility Types in Associations†	
Urban Hospital	46.2%
Rural Hospital	53.9%
Teaching Hospital	46.2%
Disproportionate Share Hospital	53.9%
Specialty Hospital	15.4%
Critical Access Hospital	15.4%
Inpatient Rehab or LTC Hospital	30.8%
Skilled Nursing Facility or Nursing Facility	23.1%
Dialysis Center	0.0%
Community Health Centers	30.8%
Other	0.0%
Regions of Operation†	
Mid Atlantic (NJ, NY, PA)	76.9%
East North Central (IL, IN, MI, OH, WI)	76.9%
West North Central (IA, KS, MN, MO, NE, ND, SD)	76.9%
South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV)	76.9%
East South Central (AL, KY, MS, TN)	76.9%
West South Central (AR, LA, OK, TX)	76.9%
Mountain (AZ, CO, ID, MT, NV, NM, UT, WY)	84.6%
Pacific (AK, CA, HI, OR, WA)	100.0%
US Territories	46.2%
Outside US	23.1%

† Hospital types and regions are multi-response questions. These percentages, therefore, do not add up to 100 percent.

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