

State of sustainability in the healthcare sector

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Disclosures

- Board co-chair of Healthcare Without Harm & Practice Greenhealth
- No financial conflict of interest



Objectives

- Describe the health sector's contribution to climate change
- Explain health sector's opportunities for climate action and leadership
- Give examples of opportunities for physicians and trainees to get involved

Global health care climate footprint

If the global health care sector were a country, it would be **the 5th largest emitter on the planet.**

a new report:
**HEALTH CARE'S
CLIMATE FOOTPRINT**



The global health care climate footprint is equivalent to the annual greenhouse gas emissions from **514 coal fired power plants.**

a new report:
**HEALTH CARE'S
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noharm.org/ClimateFootprintReport

<https://noharm-uscanada.org/ClimateFootprintReport>



Health Care's Climate Footprint

	Health care country/region emissions by ranking	Total country/region emissions by ranking
1	United States	China
2	China	United States
3	European Union	European Union
4	Japan	India
5	Russia	Russia
6	Brazil	Japan
7	India	Brazil
8	South Korea	Canada
9	Canada	South Korea
10	Australia	Mexico
	Mexico (11)	Australia (17)

Table 1: Top ten health care carbon emitters compared to total top ten emitters

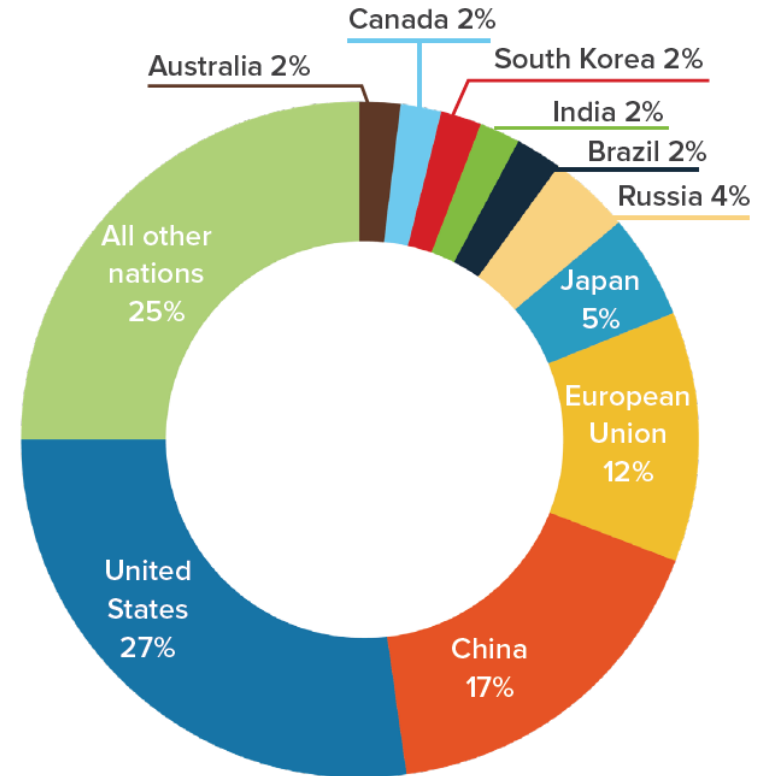


Figure 8: Top ten emitters as percentage of global health care footprint.

Health care contributes to climate change

10% of U.S. greenhouse gas emissions. Hospitals contribute one-third of those emissions.

Energy use for heating, cooling, lighting, & water use

Waste anesthetic gases

Waste hauling, treatment, & landfill gases

Meat procurement & food transport

Fleet vehicles

Employee commutes

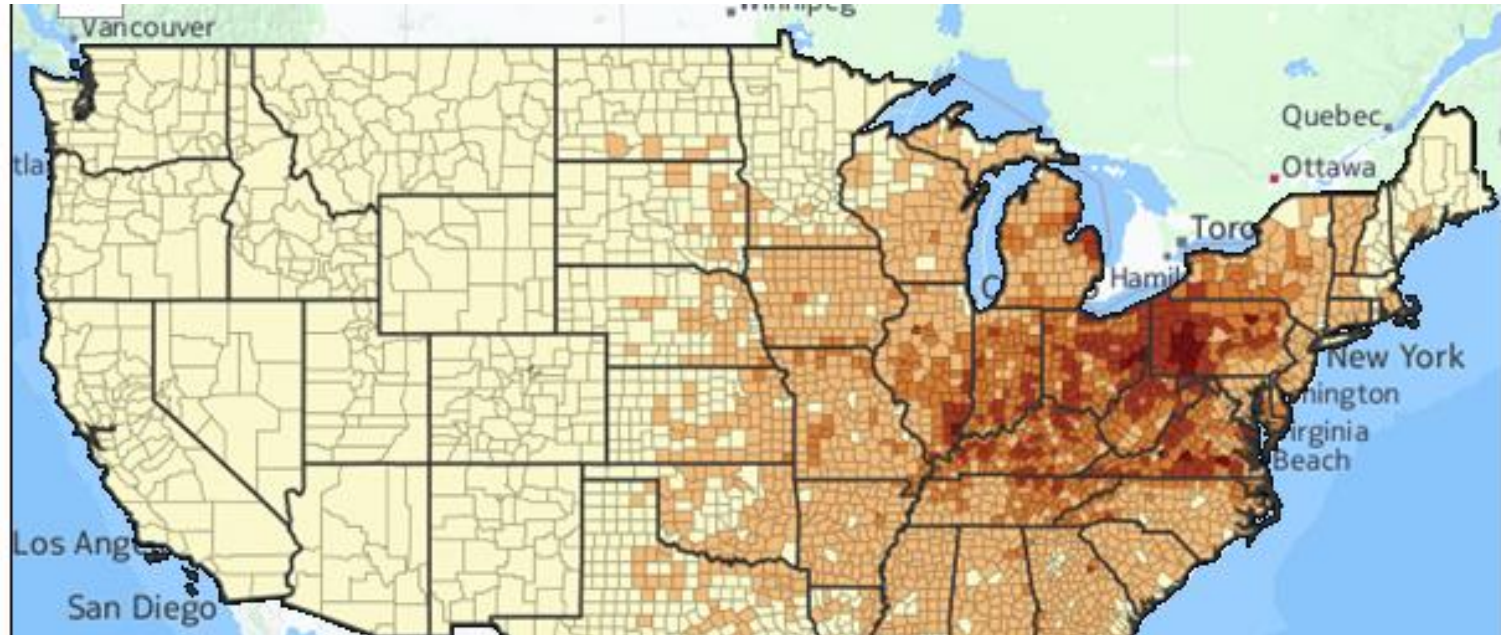
Supplies & materials



Our carbon footprint

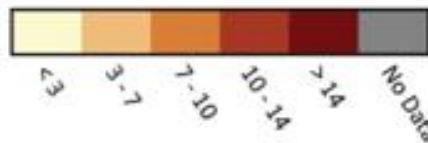


Our energy use directly impacts public health



*Healthcare is 2nd most energy-using sector in the U.S.:
Consume 10% of energy used in U.S. commercial buildings
Spend \$8 billion/year (Department of Energy)
~\$600 million/yr in healthcare costs related to increased respiratory disease burden

National Mortality Effects
from Existing Powerplants
(Annual Persons, per 100,000)



Annual Mortality Due to
Individual Power Plants
(Persons)



Energy efficiency saves operating costs

The screenshot shows the top navigation bar of The Commonwealth Fund website. The logo is on the left, and navigation links for NEWSROOM, TO THE POINT, LOG IN, and SEARCH are on the right. Below the navigation bar is a teal banner with links for Topics, Publications & Data, Experts, Grants & Fellowships, and About Us, along with social media icons for Facebook, Twitter, and LinkedIn. A secondary navigation bar lists trending topics: Medicaid Work Requirements, Health Care Delivery System Reform, and Non-ACA-Compliant Health Plans. The main article title is 'Can Sustainable Hospitals Help Bend the Health Care Cost Curve?' with a date of November 2, 2012, and authors Susan Kaplan, Blair Sadler, Kevin Little, Calvin Franz, and Peter Orris. The article text discusses energy efficiency in hospitals, and a 'Downloads' section includes an 'Issue Brief' link.

The Commonwealth Fund

NEWSROOM TO THE POINT LOG IN SEARCH

Affordable, quality health care. For everyone.

Topics Publications & Data Experts Grants & Fellowships About Us

What's Trending: Medicaid Work Requirements Health Care Delivery System Reform Non-ACA-Compliant Health Plans

Can Sustainable Hospitals Help Bend the Health Care Cost Curve?

November 2, 2012 | Susan Kaplan, Blair Sadler, Kevin Little, Calvin Franz, and Peter Orris

As policymakers seek to rein in the nation's escalating health care costs, one area deserving attention is the health system's costly environmental footprint. This study examines data from selected hospitals that have implemented programs to reduce energy use and waste and achieve operating room supply efficiencies. After standardizing metrics across the hospitals studied and generalizing results to hospitals nationwide, the analysis finds that savings achievable through these

Downloads

- Issue Brief

Do we have an energy efficiency goal?

What is our facility's Energy Star score?

Have we undertaken common energy efficiency measures

(e.g. retrocommissioning, lighting retrofits, computer power mgmt, behavior change)?

What OR energy efficiency measures have we implemented (LED lights, ventilation)?

Do we have a green building policy that specifies goals for energy performance?



The Health Care Climate Challenge mobilizes health care institutions around the world to protect public health from climate change.

200 participants representing 18,000 health care facilities in 31 countries

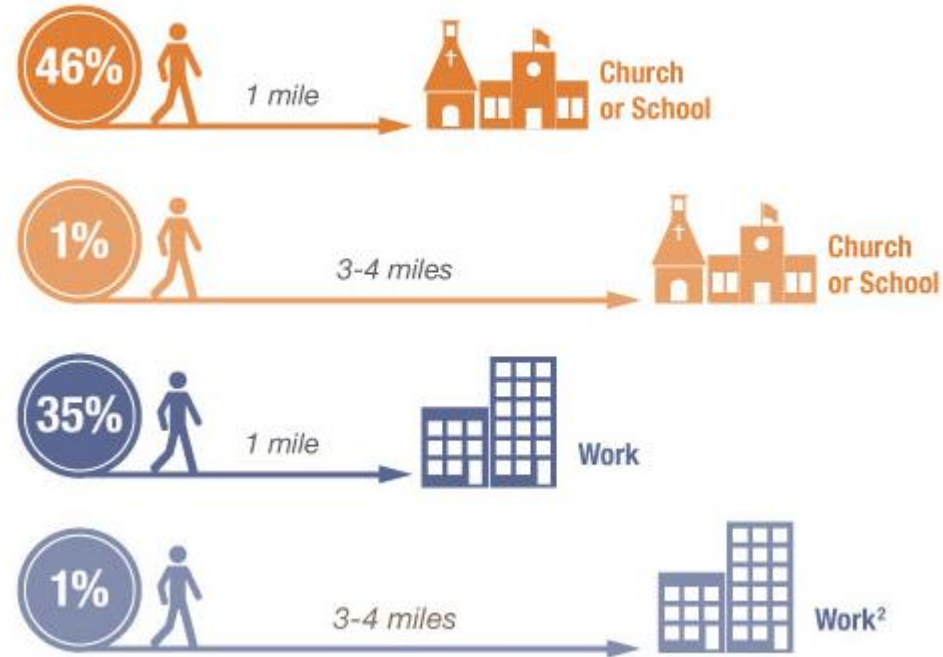


the **Rx** is
100% RE



Better Transportation Options = Healthier Lives

STUDIES SHOW PEOPLE WILL WALK TO DESTINATIONS:



PUBLIC TRANSIT GETS PEOPLE MOVING TOO:








*Do we have incentives for commuting via public transit, walking, biking, carpooling?
Do we have flexible parking options for those who can use alternatives to single-car-commuting sometimes?
Do we have incentives for employees to live near where they work?*

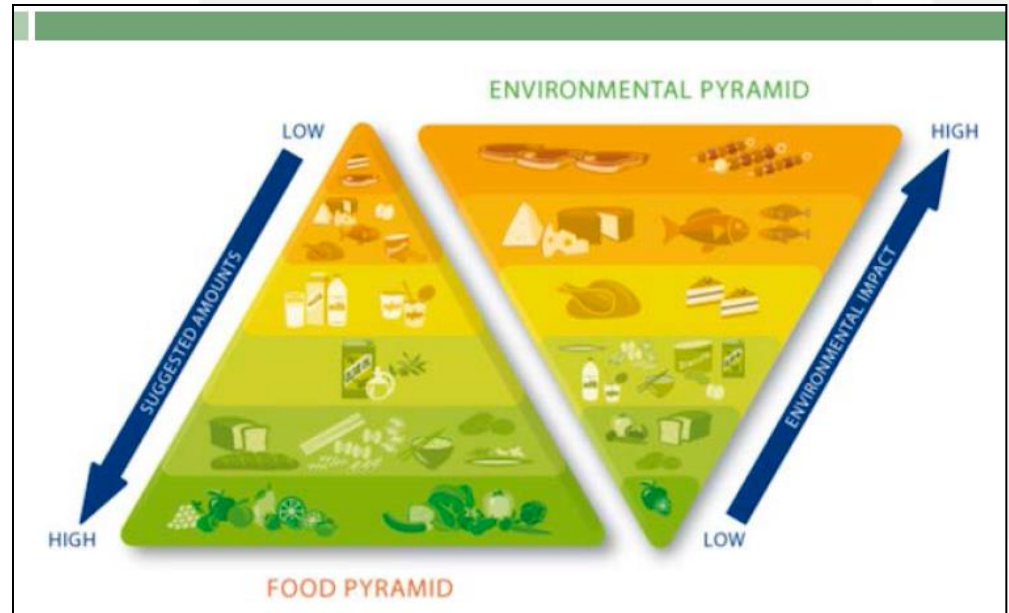
Supply chain

- Supply chain is the 2nd largest expense in health care following labor and may overtake labor by 2022 (Strategic Marketplace Initiative, 2014)
- Purchasing volume of the top 4 health care group purchasing organizations is over \$189 billion (Becker's Hospital Review, 2017)



Healthier food purchasing

		
feed 6.7	Pounds of grains and forage	
water 52.8	Gallons for drinking water and irrigating feed crops	
land 74.5	Square feet for grazing and growing feed crops	
fossil fuel energy 1,036	Btus for feed production and transport. That's enough to power a typical microwave for 18 minutes.	



THE COOL FOOD PLEDGE

Helping companies, universities, hospitals, and public facilities provide diners more of what they want while slashing food-related greenhouse gas emissions



<https://noharm-uscanada.org/coolfoodpledge>

- Decrease meat purchasing by 20% from baseline
- Focus on decreased red meat on menus
- Local purchasing
- [Antibiotic stewardship]

Waste

- U.S. hospitals generate 14,000 tons of waste/day¹
- 20-25% is plastic waste ¹
- 15% is infectious or hazardous waste ²
- >30% from OR ²
- 10-15% is food waste ²



1. <https://www.hprc.org/hospitals>

2. <https://practicegreenhealth.org>

Greening the OR



Though a tiny percentage of a hospital's total physical footprint, operating rooms have a huge impact on hospital budgets. Operating rooms, on average:

- Drive up to 60 percent of a hospital's revenue
- Are responsible for 40 to 60 percent of the organization's total supply costs
- Produce more than 30 percent of a facility's waste and two-thirds of its regulated medical waste
- Can consume three to six times more energy per square foot than anywhere else in the facility

[Anesth Analg.](#) 2012 May;114(5):1086-90. doi: 10.1213/ANE.0b013e31824f6940. Epub 2012 Apr 4.

Life cycle greenhouse gas emissions of anesthetic drugs.

[Sherman J](#)¹, [Le C](#), [Lamers V](#), [Eckelman M](#).

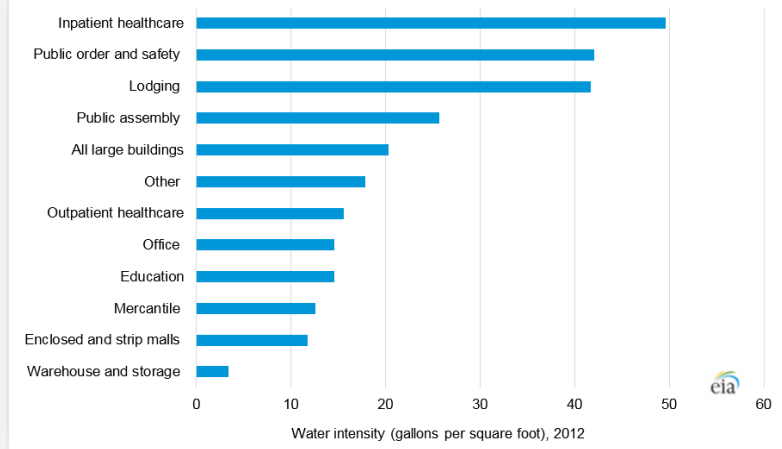
[+ Author information](#)

Desflurane 20x as potent of a GHG as sevoflurane
Waste anesthetic gas capture
HVAC setback
LED surgical lighting retrofits
Waste management

Water

- Inpatient health care facilities are water intensive
- Contributes to climate change because of energy required to distribute, heat and chill water

Figure 1. Inpatient healthcare buildings were the most intensive users of water among large commercial buildings in 2012



<https://www.eia.gov/consumption/commercial/reports/2012/water/>



Pharmaceuticals

- U.S. is largest consumer of pharmaceuticals worldwide (Wee, 2017)
- Pharmaceutical packaging is a \$20 billion dollar industry. Most is recyclable. (Zadbuke, Shahi, Gulecha & Padalkar, 2013)
- Pharmaceutical industry has larger carbon footprint than automotive industry (Belkhir & Elmeligi, 2019)
- Contribute to health care's carbon footprint, 21% of health care's carbon footprint in UK with N2O inhalers representing 4.3% (Sustainable Development Unit, 2012)



On the front line of climate change and pandemics





Primary Protection: Enhancing Health Care Resilience for a Changing Climate



Disaster preparedness & climate change impacts
Supply chain resilience
Investing in community resilience



U.S. Department of Health and Human Services

December 2014

<https://toolkit.climate.gov/>



DEMOCRACY
COLLABORATIVE



2020 Healthcare Anchor Leadership Commitment

The Healthcare Anchor Network (HAN) is a coalition of anchor hospitals and health systems committed to advancing the health and well-being of the communities they serve. This commitment is a key element of our shared mission to improve the health of the communities we serve.

The HAN will work to advance the following commitments:

- Advancing the Pipeline for a Healthy Community Through Education, Local Hiring**
- Place-based Investing to Create Sustainable Systems & Strong Communities**
- Aligning to Advance Policies to Create Healthy Communities**
- Measuring our Collective Anchor Impact**
- Planning for People and Place Through Inclusive, Local & Sustainable Sourcing**
- Planning for People Development Through Best Practices, Facilities and Training**
- Aligning Anchor Mission and Community Health Needs Assessment Priorities**



Dedication to place – a call to action

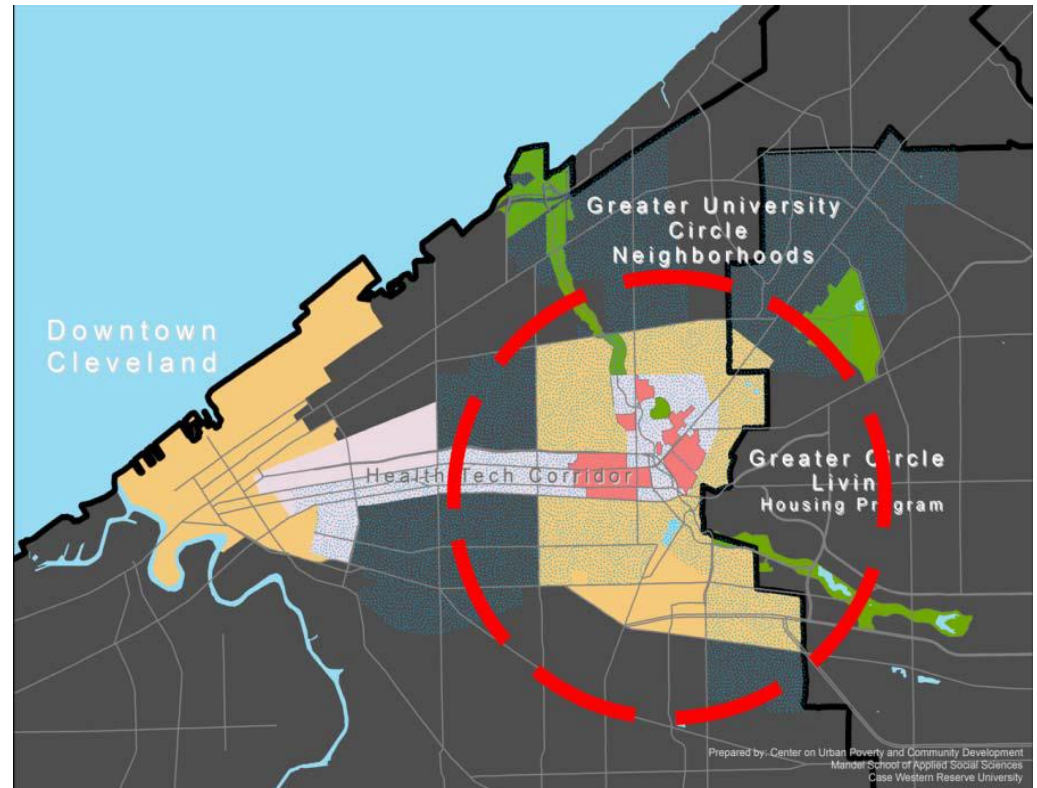
Greater University Circle

Median household income of \$18,500

24% Unemployment

Infant Mortality

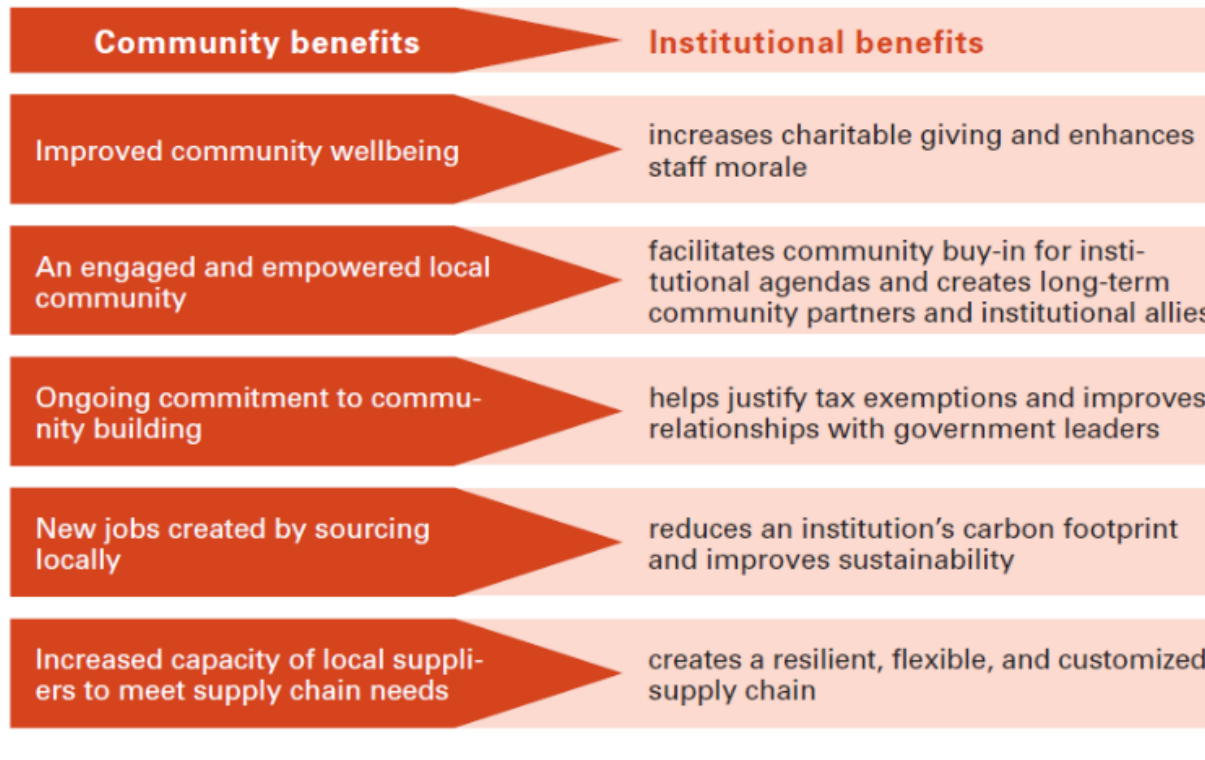
- Ohio 6.4/1000 (Caucasian)
- Ohio 14/1000 (African- American)
- Cuyahoga County 8.7/1000
- **University Circle 18.6/100**



GUC institutions

- 17 major institutions, 60K full-time jobs (1/8 all jobs in Cuyahoga County)
- Cleveland Clinic (CCF) & University Hospitals (UH) largest employers in the county
- In 2005, \$3BN in institutional development was being planned ->
- Cleveland Foundation convened “anchor institutions” (UH, CCF, Case Western Reserve University, City of Cleveland) to create “Greater University Circle Initiative” (GUCI)
 - How can we leverage economic power of these institutions to build inclusive wealth & healthy neighborhoods in GUC?
- Live Local, Hire Local, Buy Local

Sustained culture change





Episodic medical service

- Reactive, symptom-focused care



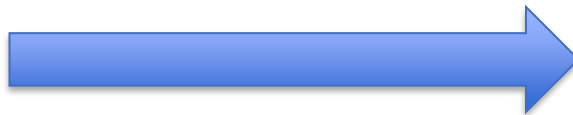
Total health care

- Team-based care
- Integrating social, behavioral and environmental health determinants
- Leverage opportunities for upstream intervention



Traditional health care

- Isolated from the community
- Come-to-us mentality



Community-integrated anchor institution

- Multi-sector collaboration
- Anchor that supports community well-being – live local, buy local, hire local

How to take action

Join (or start!) a green team for large-scale planning efforts

Reduce OR energy use & waste

Educate patients & colleagues

Educate your community

Reduce, reuse, recycle

Include climate risks in emergency preparedness plans

Choose local, sustainable foods & reduce food waste

Plant Trees

Carpool, bike, walk, or take public transport



U.S. Health Care Climate Council Members

AdvocateAuroraHealth



Health Care Climate Council

Health system leaders driving the transformation
to climate-smart health care



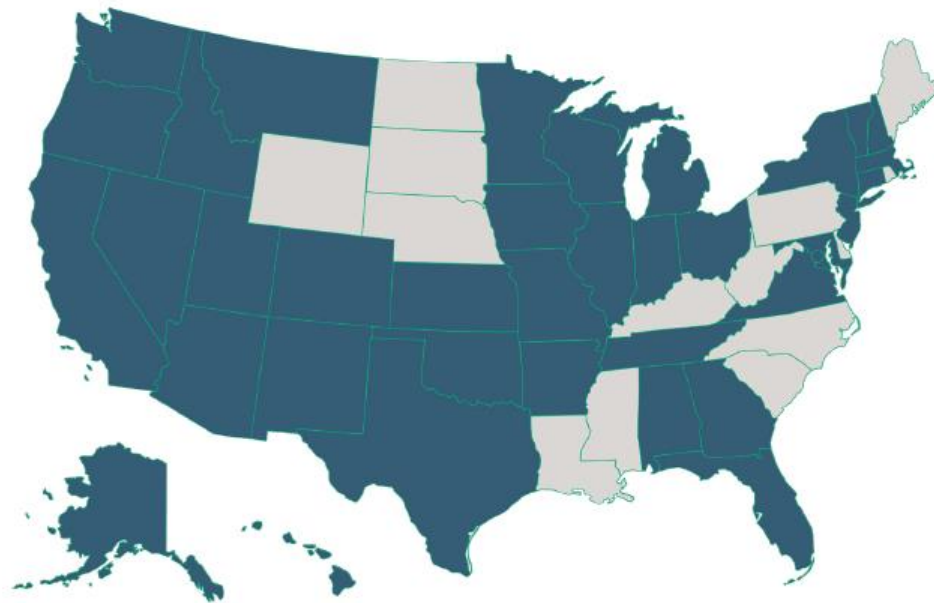
500 hospitals

75 million
patients served
annually

1 million
employees

Over \$215
billion in annual
operating
revenue

36 states





As the only sector with healing as its mission, health care has an opportunity to use its ethical, economic, and political influence to create ecologically sustainable, equitable, and healthy communities.





Health Care Without Harm



PLATINUM

About

Text

Climate change is one of the most important issues of our time and has major health and healthcare implications. As some of the most respected professionals in America, doctors and nurses have a crucial part to play in raising awareness of the public about these issues. To facilitate the medical community's awareness-raising efforts, the Medical Society Consortium on Climate Change and Health (the Consortium) brings together associations representing 400,000 clinical practitioners to carry three simple messages:

- Climate change is harming Americans today and these harms will increase unless we act;
- The way to slow or stop these harms is to decrease the use of fossil fuels and increase energy efficiency and use of clean energy sources; and
- These changes in energy choices will improve the quality of our air and water and bring immediate health benefits.

This is especially important to vulnerable Americans and communities who are experiencing a disproportionate impact today from climate change.

[HOME](#) > [ADVOCACY](#) > [ADVOCACY IN ACTION](#) > CLIMATE CHANGE TOOLKIT



Climate Change Toolkit

Resources to help reduce energy use and greenhouse gas emissions in

Physicians can play a substantial role in addressing climate change by advocating for climate change mitigation policies and educating themselves about climate change and how it affects public health and the potential health threats it may pose to their community.

To learn more about how climate change affects health, see [Climate Change and Health: A Position Statement of the American College of Physicians](#). The paper lays out the evidence of how our changing planet is impacting and will continue to impact human health.

ACP has developed a Climate Change and Health Action Plan to help our members take initiat

Health Care Without Harm Physician Network



The screenshot shows the website for Health Care Without Harm. The top navigation bar includes the logo, a location dropdown set to 'US & Canada', a 'Make a Donation' button, and social media icons for Facebook, Twitter, YouTube, LinkedIn, and Instagram. Below the navigation is a menu with links for HOME, ABOUT, ISSUES & PROGRAMS, GET INVOLVED, NEWS ROOM, BLOG, and RESOURCES. The main content area features a breadcrumb trail: Home > Climate and Health > Initiatives > Join our Physician Network. The page title is 'Join our Physician Network'. The text describes the network's mission: 'As trusted leaders, physicians have a unique opportunity to advance health care sustainability and to influence public policy to protect the health of their patients. Watch our short video, "Do No Harm," to learn more and be inspired.' It also states that the network supports emerging and established physician leaders in leveraging their influence and expertise to advance the growing health care sustainability movement and to create climate-smart health care. A final paragraph notes that while physicians take an oath to "do no harm," the enormous environmental impact of health care operations in the United States is contributing to the burden of disease and harming the health of patients and communities. The health care sector produces an estimated 10 percent of U.S.



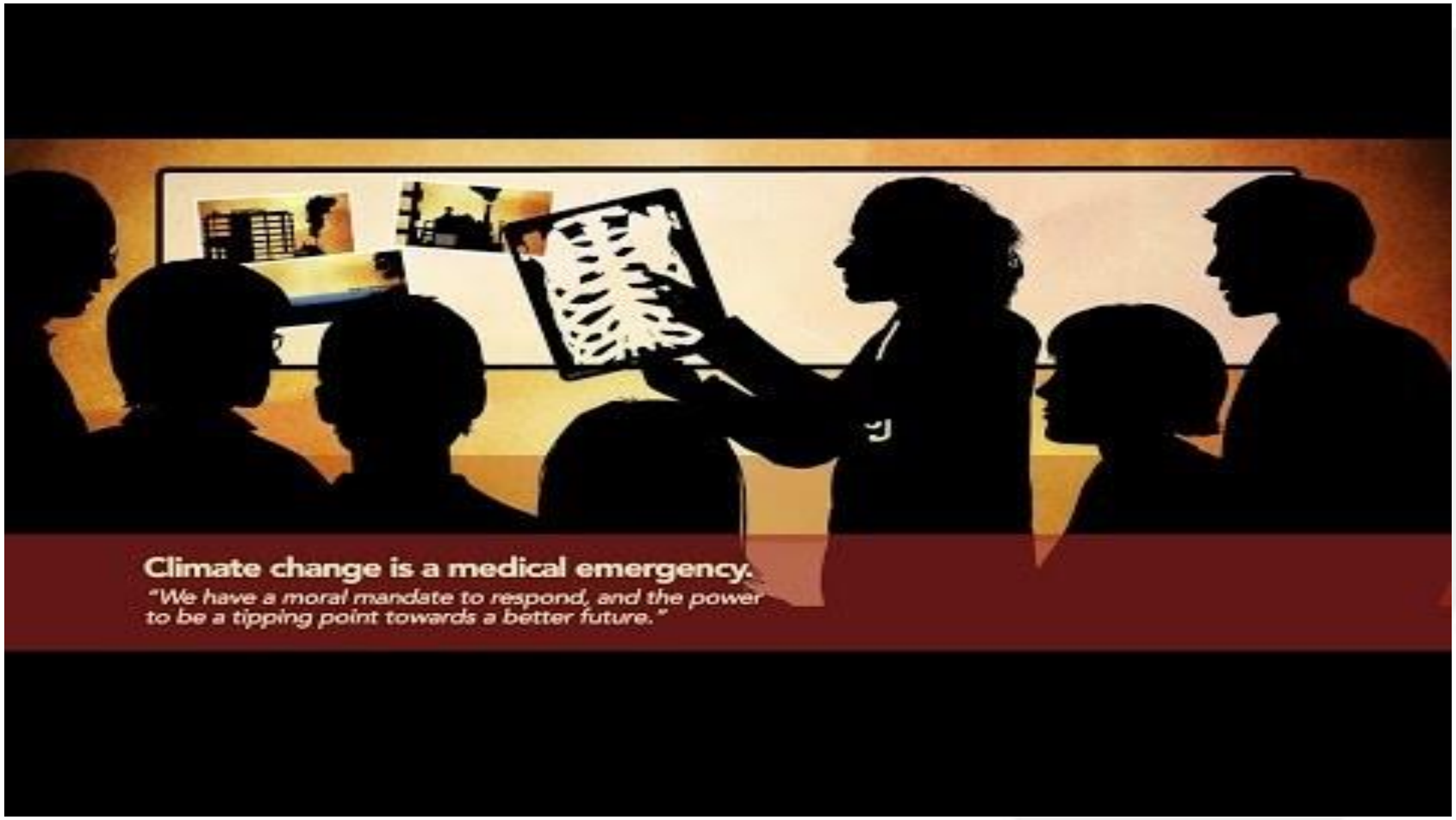
<https://noharm.org/physiciannetwork>



MEDICAL STUDENTS FOR A SUSTAINABLE FUTURE (MS4SF)

- We are medical students across the U.S. dedicated to action around the health impacts of climate change, with projects in the following areas:
 - **Research** in climate & health, connecting members with available mentors
 - **Advocacy** for environmentally just policies in the interest of future patients
 - **Curriculum** development for medical students to integrate climate & health
 - **Climate-smart** green healthcare system practices
 - **Plant-based** health emphasizing wellness through sustainably-sourced food
- Connect with MS4SF to view member publications, project profiles, advocacy updates, ways to partner with us, and get involved!
 - **Email:** ms4sf.med@gmail.com
 - **Website:** ms4sf.org
 - **Twitter, Instagram, & Facebook:** @MS4SF





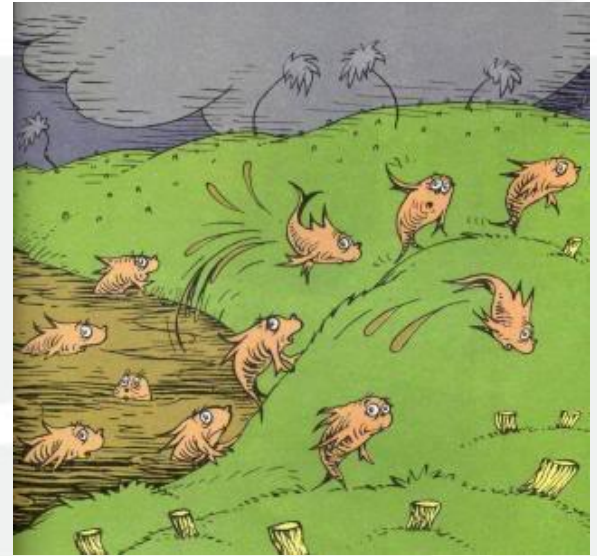
 **University Hospitals**
MacDonald Women's Hospital


Rainbow
Babies & Children's



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Thank you!

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