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MAKING HEALTHCARE HEALTHIER:

Reducing Healthcare's Impact on the
Environment

Kentucky Women's Network



**The Kentucky Women's Network
Commonwealth Institute for Policy Issues and
Civic Engagement**

Making Healthcare Healthier

Reducing Healthcare's Impact on the Environment

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Introduction

Climate change is affecting humans and society in many interrelated ways. It impacts human health and safety everywhere and, in turn, affects communities and entire economies. In early 2021 the Kentucky Women’s Network Commonwealth Institute for Policy Issues and Civic Engagement began to study the contribution of healthcare to climate change in Kentucky. Climate change is already directly affecting the lives of Kentuckians as evidenced by the December

2021 tornado in Mayfield; the July 2022 floods in eastern Kentucky; the extreme heat across the state in July 2023; the lengthening pollen season and extended tick and mosquito season. According to [public opinion polls in 2021](#),¹ more than 60% of Kentuckians think that global warming is happening and that CO₂, the most common greenhouse gas, should be regulated as a pollutant.

The health sector is estimated to contribute 8-10% of the total of greenhouse gas emissions in the United States. Making Healthcare Healthier is a roadmap to improve public health by reducing the greenhouse gas emissions of the healthcare sector. The goal is to save lives while reducing cost, waste and pollution.

Key Questions This Paper Seeks to Address:

- 1. U.S. healthcare heals but harms at the same time. How can that be remedied?*
 - 2. How can sustainable healthcare improve wellbeing, save lives, lower costs, and improve the environment?*
 - 3. How do teamwork and education create a healthy healthcare model?*
-

Connecting the dots: climate change, greenhouse gases, air pollution, and healthcare

The US healthcare industry comprises 19.7% of the gross domestic product (GDP). Indeed, healthcare is a major economic engine of our economy, but it is also a driver of climate change that is wreaking havoc with our health. Despite the overlapping health crises of COVID and opioid addiction, an even more defining public health crisis of our time is climate change. The overwhelming scientific consensus is that global warming is currently ushering in changes to the global biosphere that affect weather patterns, food production, freshwater availability, disease transmission, human migration, and a host of other major factors as seen in this article with an [interactive graphic](#).²

CO₂ and other greenhouse gases like methane and nitrous oxide trap heat in the earth's atmosphere. Greenhouse gases are essential to keep heat from escaping into space and making earth too cold to be habitable by humans. However, extreme increases in [greenhouse gases due to human activity](#)³ over the past century are causing too much heat to be trapped. As a result the earth is heating up posing significant risks to human health and safety.

The New England Journal of Medicine is focusing on a series of articles related to climate change starting with the [impact of fossil fuel pollution](#)⁴ on children's health. Children both before and after birth are particularly vulnerable to air pollution and climate change. In addition to greenhouse gases causing climate change, combustion of fossil fuels releases tiny particles called PM2.5, sulfur dioxide, nitrogen oxides, polycyclic aromatic hydrocarbon, mercury, and volatile chemicals that form ground-level ozone. These components are responsible for damage to physical and mental health.

The United States has a sick care system instead of a healthcare system. We respond to symptoms but often lack vigor in addressing the root causes of diseases. [Healthcare professionals can play a pivotal role](#)⁵ in reducing our carbon footprint and in preventing disease. We can reduce the harm that is being done to patients and communities and follow the Hippocratic Oath (to do no harm) by limiting healthcare's contribution to greenhouse gas emissions.

In addition to creating a healthier environment, **healthcare costs are lower** when energy and waste issues are addressed as per the American Medical Association's concise document, ["Lower Costs By Going Green."](#)⁶ This article references a 2012 analysis of hospitals implementing 3 sustainability measures – energy use reduction, waste reduction, and efficient purchasing of operating room supplies – and showed a potential savings of \$5.4 billion over 5 years if adopted by hospitals in the United States. These savings do not include the monetary benefits from improving the health of patients and communities.

Another plus is that recognition for sustainability efforts in healthcare can contribute to awards like Magnet designation, LEED certification, and Practice Greenhealth awards for environmental excellence which can be used for marketing, recruitment, retention, and community respect. The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) is considering [requirements related to sustainability](#).⁷ Another accrediting organization for some of the Kentucky Hospitals is Det Norske Veritas (DNV), a worldwide organization evaluating many industries including healthcare. With respect to the environment, [DNV has an environmental sustainability and climate policy](#).^{7a}

SOLUTIONS:

I. Smart Management of Non-Food Waste

The sequence of solutions was based on visibility to staff and patients and ease of initiation. Early accomplishments are a stimulus to persistence and expansion.

A. Reduce

The **first way to reduce waste is not to create it** in the first place.

The [Healthcare Environmental Resource Center \(HERC\)](#)⁸ describes pollution prevention as reducing or eliminating waste at the source. This site provides several resources in the categories of purchasing and inventory, less toxic alternatives, raw materials, and handling and waste segregation.

There are several ways [medication waste can be reduced](#).⁹ While unused hazardous and controlled substances must be disposed of according to the policies of the hospital and state and federal regulations, there is much waste of medications that is not regulated. Options such as prefilled syringes, splitting of vials, and not drawing up medications that may not be used but are easily available could avoid waste. **Prefilled syringes** can be made by hospital pharmacies splitting vials under a sterile hood. They would be advantageous for expensive medications which need to be readily available. Another answer to this issue would be 3rd party prefilled syringes which have a longer shelf life when returned to stock and are often cost neutral or cost saving. Their use has also been found to lower medication errors. Correct disposal of medication is costly,

and using these options is less expensive than creating the medical waste and then paying to dispose of it.

Treatments of asthma and chronic obstructive pulmonary disease (COPD) deserve special mention. These conditions are often treated with inhalers called [metered dose inhalers \(MDI\)](#)¹⁰ which use hydrofluorocarbon as a propellant.

Hydrofluorocarbon traps heat 1500-3600 times better than carbon dioxide over 100 years. Drs Rabin and Furie reported “in 2020 Americans used roughly 144 million metered -dose inhalers – the greenhouse gas equivalent of driving half a million cars for a year.” **Solution:** Dry-powder inhalers and soft-mist inhalers are available and likely will improve outcomes for patients and the environment.

Prepared kits whether from manufacturers or prepared in central supply for procedures such as a central line or endoscopy may contain unneeded items or unnecessary plastic. Estimates suggest that [87% of the surgical instruments](#)¹¹ laid out for an operation are rarely used. Working with vendors, central supply staff, and surgeons to reformulate the kits would lead to environmental and cost saving benefits. [See Reformulation under section 1 in the article from The American Society of Anesthesiology \(ASA\).](#)¹²

Choose **electronic** over paper documents, but if printed documents are necessary, use **recycled paper** and make **double sided printing** the default setting.

B. Recycle

For more than 2 decades, the [University of Kentucky Medical Center \(UKMC\)](#)¹³ has placed an upfront disposal fee on all purchases. This money (a few cents on a dollar) is automatically and electronically transferred to the Recycling and Reuse Center which allows every division to have recycling bins, pick-up, and education on what and how to recycle.

The nurses at UKMC have been particularly concerned about waste streams, and the recycling center has been able to find recycling programs for such items as pipettes and [blue wrap](#).¹⁴ Sometimes these markets for single stream items have a monetary value.

There are companies (like [Recycling Express](#)¹⁵ in Northern KY) that will perform a waste audit to see how much and what is being discarded, what percentage of

the scrap can be recycled, and how much value that would add to the bottom line.

Waste Segregation is a major element of recycling. Biomedical waste has the potential to spread disease if not handled properly. The Centers for Disease Control and Prevention (CDC) suggests that only 2-3% of hospital waste needs to be disposed of as biohazard waste (slightly higher in the operating room 6-15%). However, 50-70% of waste is generally put in the biohazard waste stream. Limiting the volume of biohazardous waste for disposal leads to substantial dollar and environmental savings for the hospital since the cost can be as much as 500 % higher, and 90% of biohazard waste is incinerated. A huge difference, indeed. See [Waste stream management and recycling](#)¹⁶ opportunities. Medical waste can be greatly reduced at considerable [cost benefit](#).¹⁷

Non-contaminated medical and nonmedical waste needs to be further separated based on what goes to a landfill vs. a recycling center. Recycling is already available in most areas. According to a survey of the American Society of Anesthesiologists, "[Education for recycling](#)¹⁸ is perceived as an unmet need by healthcare workers."

The need for staff education came up again and again in our research.

Hospitals use an inordinate number of batteries which should be recycled. The Battery Act passed by the federal government in 1996 requires that all states comply and establish programs for the collection, transport, and disposal of environmentally hazardous rechargeable batteries. However, alkaline batteries such AAA, AA, C, D and 9-volt batteries should be recycled as well because they contain trace amounts of hazardous metals and because the metal part of the batteries are recyclable. Some states have adopted laws requiring disposable battery recycling. There are mail-in programs (like [call2recycle](#)¹⁹ which has prepaid mailers) that can be used to recycle single use batteries.

Andrew Dodd and Meredith Howard from the Northern Kentucky University (NKU) Doctor of Nursing Practice Nurse Anesthesia program evaluated discarded batteries in the handles of disposable laryngoscopes. In a 3-month period there were 902 AAA alkaline and zinc carbon batteries discarded in laryngoscope handles in the 20 operating rooms at a local Kentucky hospital. Of the 20 batteries evaluated, 19 had a full charge. (Digital repository in the Stealy Library,

NKU) If the laryngoscope handles are not reused, the batteries should be removed and used elsewhere.

C. Reuse

Disposable **medical devices** have also made our healthcare less healthy. The healthcare industry has moved in a mind-boggling way to using disposable medical devices instead of reusable ones. While these offer convenience, they have caused micro plastics to flood our environment. In fact, it is estimated we ingest a [credit card of plastics weekly!](#)²⁰

[Reusable, non-disposable medical equipment](#)²¹ has a lower carbon footprint, is **safe and cheaper** than disposable equipment even when considering paying workers to collect and sterilize the equipment and the method of sterilization. And practitioners prefer reusable equipment in most cases because reusable equipment is more durable and less likely to be in short supply unlike disposables which were sometimes scarce due to the pandemic and supply chain disruption.

The evaluation of equipment for environmental impact is called Life Cycle Analysis and yields different outcomes for different equipment and different locations. [See disposable vs reusable equipment in section 1](#)²² in the article by the ASA.

Even so-called single use equipment can, in some cases, be sterilized and reused. [See Reduce, Reuse, Recycle: Reprocessing Medical Devices](#)²³ in the article by the ASA. Many hospitals are now using [third-party reprocessing vendors for single use devices](#).²⁴ They have the same quality standards as the original manufacturers of the devices. There is [no definite link between reused tools and hospital acquired infections](#).²⁵

In addition, University of Kentucky students in the Textile Testing Laboratory are developing durable, [reusable PPE \(personal protective equipment\)](#)²⁶ for health care workers. They have developed five different types of gowns that can be used through 75 wash cycles.

Donation of equipment and supplies is another way to reuse materials. One organization is [SOS International](#),²⁷ a non-profit Global Health organization in Louisville, KY. They accept everything from hospital beds to tubing and catheters. Expired equipment is used for education. Sort dated equipment is used locally and long dated equipment and supplies can be sent overseas. Last year they gave

more than 500,000 pounds of materials a second useful life, saving the production of new materials and plastics. Though their donation can be quantified in pounds, they measure their success by the impact they make. Many of the hospitals in Kentucky have collection bins picked up periodically by SOS International. SOS International was the 6th organization to be accredited by the med surg alliance.

[Med-Eq \(medical equipment donation agency\)](#)²⁸ is a free service that specializes in pairing donors (families, individuals, vendors, and facilities) with vetted charities. Donations may range from bandages to catheters to hospital beds to surplus inventory.

A [circular economy is the goal](#)²⁹ whereby manufactured products are maintained in circulation, and resource and environmental costs are distributed over time as opposed to the linear (one and done) supply chain.

II. Food Management

According to data collected in 2016, the EPA reported that [hospitals waste 288,401 tons of food/year](#)³⁰ in the United States and nursing homes contribute 465,962 tons/year of food waste. In one study [38% of the food](#)³¹ provided by the hospital kitchen was wasted. A recent article noted that the 11 public hospitals in New York City were now serving only [plant-based meals](#)³² unless meat was specifically requested thus reducing greenhouse gas emissions by 36% and with initial cost savings of 59 cents per tray. 90% of patients expressed satisfaction with their meals.

In an AMA Journal of Ethics opinion paper, [institutional food procurement policies](#)³³ are considered to be public health strategies. The comprehensive [Good Food Procurement Policy](#)³⁴ has 5 key values categories – local economy, environmental sustainability, nutrition, valued workforce, and animal welfare.

Healthcare without Harm offers excellent ideas on [healthy food in healthcare](#)³⁵ including less meat, better meat (without antibiotics), local or sustainable purchasing, farmers markets at the hospital, and diet and nutrition education.

Most hospitals contract with food supply companies like Aramark, Sodexo, or Morrisons. These companies use a food waste tracking system like [Leanpath](#)³⁶

which gives an accurate picture of food waste streams that allows hospitals to better manage food purchases while saving money.

Many hospitals are already using an **on-demand system for meals** whereby the patient places a phone order when ready to eat. This system reduces food waste. For cafeteria service, **buying in bulk** rather than individual packets and using a **water cooler** or filtered water rather than bottled water would help lower the carbon footprint. Disposable plates and utensils should be minimized in favor of **reusable plates and dinnerware**, bedside cups and water pitchers.

Other appropriate diversions from the landfill would be food donation and composting. **Food donation** is usually performed by non-profits, and there are several of these organizations in Kentucky: Glean Kentucky, Kentucky Harvest, Last Mile, and God's Pantry. Food unable to be donated could be made a part of the ever-increasing community composting centers when available. **Commercial composting** decreases methane production whereas in a landfill, organic material creates methane. In the atmosphere, [methane](#)³⁷ has 100 times the immediate greenhouse gas effect of CO₂.

III. Greening the Operating Room

“Operating rooms are a [massive source of greenhouse gas](#)³⁸ production for hospitals, representing 70% of their waste and generating 3-6 times as much carbon as the rest of the hospital.”

A. Anesthetic gases: It is important to [choose anesthetic gasses](#)³⁹ with lower greenhouse gas emissions and shorter lifespans, e.g., sevoflurane over desflurane. Desflurane has a 2500 times greater greenhouse gas effect than CO₂ and lasts 14 years in the atmosphere while Sevoflurane has a greenhouse gas effect about 130 times that of CO₂ and lasts only 1.1 years. Desflurane is more expensive than sevoflurane. Recovery from anesthesia is [faster with desflurane](#)⁴⁰ but discharge from the post-anesthesia care unit is not different.

[Greenhouse gas emissions of inhaled anesthetics](#)⁴¹

| Table I. Greenhouse Gas Emissions of Common Inhaled Anesthetic Agents | | | | |
|---|------------------------------|--|--|---|
| 1 MAC inhaled agent at various Fresh Gas Flows (FGF) | Atmospheric lifetime (years) | 100-year Global Warming Potential (GWP) (per kg, in comparison with CO ₂ where CO ₂ = 1) | Ratio of CO ₂ -equivalents produced | Equivalent auto miles driven per hour use of anesthetic |
| Sevoflurane 2% 2L FGF | 1.1 | 130 | 1.0 | 8 |
| Isoflurane 1.2% 2L FGF | 3.2 | 510 | 2.2 | 18 |
| Isoflurane 1.2% 1L FGF | | | 1.1 | 9 |
| Desflurane 6% 2L FGF | 14 | 2,540 | 49.2 | 400 |
| Desflurane 6% 1L FGF | | | 24.6 | 200 |
| 60 % nitrous oxide alone at 1L fresh gas flow | 114 | 298 | | 61 |

B. Other anesthetics: Even more carbon savings can be made by using [nongaseous anesthetics](#).⁴² Hence, where possible anesthesia whether neuraxial, regional, local, or intravenous is the better choice for the health of the environment. [Nitrous oxide](#)⁴³ should also be used sparingly. It depletes ozone, and has a greenhouse effect about 300 times that of CO₂, and lasts more than 100 years.

C. Energy use in the OR is significant. A study in 2014 found that [HVAC](#)⁴⁴ systems accounted for 64% of the hospital's direct energy use, and a 2017 study found the OR uses more energy than any other area in the hospital. There are rules that govern the amount of suitably clean air that must be maintained during surgery, and the air flow is measured as the number of air changes per hour (ACH). When the OR is in use, the ACH is 20; when not in use, ACH may be reduced to 6 as long as the OR room maintains a positive pressure compared to adjoining spaces. Where these ACH have been strictly followed, there has been a significant **drop in the OR energy use and cost.**

Resources for reducing the carbon footprint of the OR

A superb review of the numerous ways in which [sustainability can be practiced in the OR](#)⁴⁵ is provided by The American Society of Anesthesiologists.

[*Climate-Smart Actions in the Operating Theatre for Improving Sustainability Practices: A Systematic Review*](#)⁴⁶ found several areas for improvement in the OR: 1) Anesthesia Practices 2) Wasted Medications 3) Waste Segregation 4) Single Use Devices and 5) Energy Use in the OR.

An excellent and [easy-to-read and understand article](#)⁴⁷ on sustainability in the OR was produced by the University of Michigan's health lab.

Another resource is the [toolkit for decreasing the carbon footprint](#)⁴⁸ of operating rooms prepared by Practice Greenhealth.

IV. Energy

Make buildings more energy efficient.

According to Leadership in Energy and Environmental Design (LEED), buildings account for almost 40% of greenhouse gas emissions. [Hospitals](#)⁴⁹ have one of the highest building emissions because of their 24/7 operations.

Hospitals, both new and existing, can, and should, be designed, or adapted, to maximize green technology. Instructions for [retrofitting existing buildings](#)⁵⁰ is available at the Federal Energy Management Program. Because healthcare facilities, including hospitals and outpatient facilities represent one of the most energy-intensive market segments, they were selected as one of the highest priority building sectors for energy management. Hospital energy use per building far outpaces any other building type.

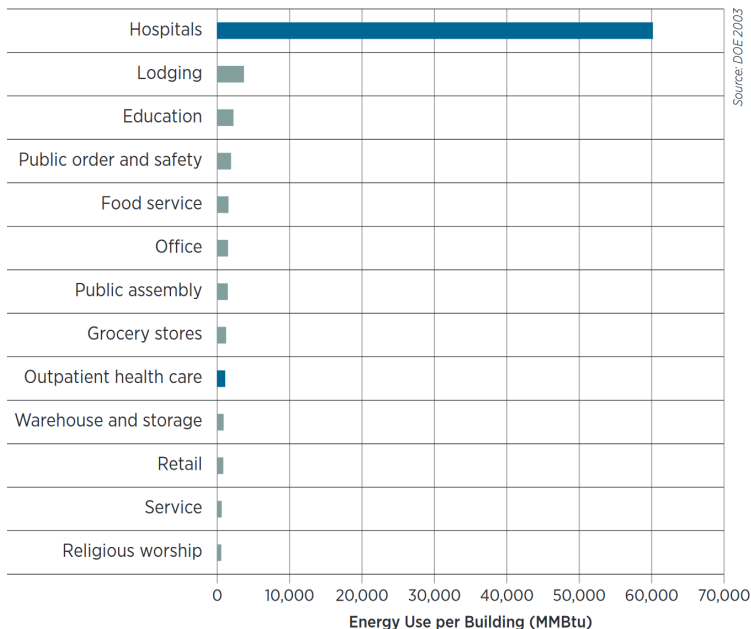


Figure 1-2 Energy use per building for common commercial building types

This reference gives a [priority table](#)⁵¹ in appendix D for reducing energy in existing buildings and retrofits grouped from “no-brainers” to “likely not worth your while.” Replacing incandescent bulbs with LED bulbs in exit signs is a “no-brainer” as shown in these examples from health care facilities in various cities.

Table C-2 Key Results of Energy Savings Analysis for LED Exit Signs

| Location | % Site Energy Savings (1st Year) | Electricity Savings (kWh) (1st Year) | Natural Gas Savings (therms) (1st Year) | Energy Cost Savings (1st Year) | O&M Cost Savings* (1st Year) |
|-----------|----------------------------------|--------------------------------------|---|--------------------------------|------------------------------|
| Miami | 0.2% | 157,983 | -4,165 | \$6,445 | \$9,476 |
| Las Vegas | 0.2% | 160,036 | -4,303 | \$6,872 | \$8,992 |
| Seattle | 0.1% | 161,042 | -4,799 | \$8,001 | \$9,528 |
| Chicago | 0.1% | 159,717 | -4,810 | \$9,945 | \$8,765 |
| Duluth | 0.1% | 160,978 | -4,978 | \$10,731 | \$9,149 |

Many architectural firms in the U.S. are providing leadership in sustainable building design. One such firm is [the MASS Design Group](#),⁵² a non-profit organization which has been active in design that enhances healthy building environments. The founders have published a book entitled the Architecture of Health. The book explores building design, its relationship to disease and health, and provides inspiration to create buildings that can help to make us healthier.

The [Dutch architectural firm Vakwerk](#)⁵³ is featured in the July 2022 issue of the *Architectural Record* for its stunning new hospital facility that features solar roof-top panels, roof-top gardens and an extremely well insulated envelope allowing for an all-electric building design.

Use of green power cuts emissions whether by purchasing energy from renewable sources, installing solar panels, or planting green roofs or rooftop gardens to [reduce heat islands](#)⁵⁴ and fossil fuels use. The Cincinnati zoo installed a solar array over a large parking lot which kept cars shaded and pavement cooler and reduced snow removal in winter as well as providing energy for their facility. Health care facilities often have flat roofs that will accommodate non-penetrating, ballast mounted solar panels which have a simpler lower cost installation.

[Heat pumps](#)⁵⁵ are energy efficient **HVAC systems** and may be air-source or geothermal and can be used to [recover wasted heat](#).⁵⁶ There are also heat pump water heaters. [Changing to electric HVAC systems](#)⁵⁷ reduces greenhouse gas emissions immediately in every county in the United States regardless of the source of electricity and will continue to improve emissions as the electric grid gets greener.

Air conditioning and refrigeration systems consume close to 25% of electricity generated worldwide and are responsible for 7% of global greenhouse gas emissions. A company called [Sky Cool](#)⁵⁸ has developed a radiative cooling material to improve the efficiency of any vapor-compression based cooling system, saving customers money and preventing the emissions of CO2 and other harmful greenhouse gases.

Researchers at Purdue University have developed an [ultra-white paint](#)⁵⁹ which reflects 98.1 percent of sunlight and can keep surfaces up to 19 degrees Fahrenheit cooler than their ambient surroundings. This new paint, which may become available for purchase in the next year or two, could someday help combat global warming and reduce our reliance on air conditioners.

Purchase Energy-Efficient Products by using products labelled [Energy Star](#).⁶⁰

Turn off computers, monitors, and printers in offices at night. Attaching these to a single power strip allows them to be turned off with one switch. Operating lights on motion detectors where feasible (conference rooms, public bathrooms) saves money and energy. Sloan Kettering Memorial Hospital saved \$350,000 by having their IT department install an automatic signal to [turn off office computers at night](#).⁶¹

Switch to **energy efficient light bulbs** (CFLs, LED bulbs) and adjust the thermostat. A significant energy savings can be appreciated when LED bulbs replace incandescent, CFL and other older bulb technology. The British lighting company ESL's [case studies](#)⁶² report such savings.

Plan **meetings with sustainable considerations** which includes site selection, transportation, food, waste removal, remote access, and energy. The reference below provides a checklist for environmental priorities. U.S. Environmental Protection Agency: It's Easy Being Green! A Guide to Planning and Conducting [Environmentally Aware Meetings](#) and Events.⁶³

Another excellent reference for [creating sustainable meetings](#)⁶⁴ is from the American Society of Anesthesiologists.

V. Transportation

Erect **signage** alerting drivers that **idling is not allowed** for buses, ambulances, waiting cars, trucks, taxis, or motorcycles.

Invest in **electric vehicles** for transporting staff, patients, lab tests or supplies from one site to another. Install **charging stations** for electric vehicles.

Incentivize the use of **fuel-efficient commuting** – walking, public transport, bicycling, ride sharing. Personnel departments can develop connections between employees with similar home addresses and work shifts to encourage carpooling. One hospital in Oregon makes a personalized commuting plan for every new employee. Other hospitals provide showers and changing rooms and on-site bicycle repair.

Allow for some **work from home** for employees. Encourage **evisits and video visits** when appropriate.

VI. Supply Chain

Of all the emissions from the healthcare sector, supply chain creates the largest carbon footprint because it includes both production, delivery, and disposal of all hospital supplies and pharmaceuticals and food.

Choose suppliers with efficiency or alternate-fuel standards and prefer local suppliers. **Choose products** with environmentally sustainable packaging.

[Practice Greenhealth](#)⁶⁵, [Green Business Bureau](#)⁶⁶, and [Energy Star](#)⁶⁷ provide information about sustainable supply chains.

Kaiser Permanente has developed guidelines for [environmentally preferable purchasing](#).⁶⁸

PUTTING SOLUTIONS INTO ACTION:

1. Assemble your green team. Usually, the green team participation is voluntary, and finding the most passionate people is important. A core group of interested people could initiate the team by using this policy to educate themselves and then reach out to the following people or initiation of the team could come from medical center leadership.

Members should include:⁶⁹

- Green team champion, often a facility engineer, but maybe anyone with a passion for sustainability and a little time. The champion facilitates the green team and its meetings.
- Chief financial officer (or someone who reports directly to him or her)
- Executive sponsor – well recognized leaders emphasize the importance of the mission.
- Operational leaders from facilities, environmental services, nutrition services, supply chains, space planning, transportation.
- A projects manager
- Marketing and public affairs
- Frontline staff like doctors, nurses, security, administrative staff, receptionists, and more.

2. Create a mission statement. Here are some examples of mission statements⁷⁰ from Practice Greenhealth.

As a leading health system, Spectrum Health is aware of the connection between the environment and human health. Our mission – to improve the health of the communities we serve – includes a commitment to sustainability efforts. The focus of our sustainability commitment is to improve human health, enhance the natural environment, and practice fiscal responsibility.

HealthPartners is committed to caring for the places where we live and work so we can provide a healthier and cleaner community for our employees, members, patients, and future generations.

3. Manage your green team

In smaller organizations a single green team may suffice with smaller groups assigned to specific projects while in larger organizations, a multi-layered team may be appropriate.

[Establish recurring meetings](#)⁷¹ with agendas and clearly assigned tasks.

[Energy Star partners](#)⁷² have had the most successful energy policies when they:

- State a clear, measurable objective.
- Define roles and decide who will be responsible.
- Plan, Do, Study, Act (PDSA) for continuous improvement.
- Link energy goals to overall financial and environmental goals of the organization.

4. Evaluate baseline energy use and waste and compare with similar organizations (benchmarking).

These references are an excellent source for [green team baseline](#)⁷³ and [benchmarking](#).⁷⁴

Practice Greenhealth provides [webinars](#)⁷⁵ on how to conduct a material and waste baseline, how to conduct an energy baseline, transportation guidelines, and an anesthetic gas data collection worksheet.

The American Society for Healthcare Engineering (ASHE) has a dashboard on energy use with a [benefits calculator](#)⁷⁶ listed under educational tools.

5. Select one or more projects and implement (see solutions above)

6. Track energy and greenhouse gas reductions, costs, and savings to verify that the intended goal is being met. Track costs and operational savings, and report success or failures to inform future decisions.

The Royal College of General Practitioners: Currently the college offers a free service, “Green Impact for Health”. It guides medical practices towards environmental sustainability and offers many great ideas. It provides a useful scoring system with which a healthcare practice or clinic can [track accomplishments](#).⁷⁷

[“Health Care Sustainability Metrics: Building A Safer, Low-Carbon Health System”](#)⁷⁸ is another tracking system.

7. Educate healthcare professionals, leadership, and staff

Create medical, surgical, and nursing grand round formats to inspire participation in efforts to curb greenhouse gases.

Energy Star recommends:

- Have the CEO officially issue the policy
- Tailor the policy to the organization’s culture
- Make it understandable to staff, patients, and families
- Communicate the policy to all employees and encourage their involvement

My Green Doctor suggests devoting 5 min of every professional or staff meeting to sustainability efforts.

American College of Physicians (ACP) launched its toolkit in 2017. [The Toolkit](#)⁷⁹ includes ACP policies on climate change, practice management and many related topics. There is a terrific PowerPoint, a helpful fact sheet for patients, regional talking points, and more.

8. Acknowledge and Celebrate Success

Recognition can and should be done within a medical center but several entities have national recognition programs as well: Practice Greenhealth, LEED certification, Energy Star, and Magnet status.

Magnet designation is a program of the American Nursing Credentialing Center and is a recruitment tool for nurses. Examples of how Magnet hospitals used environmental stewardship to meet some of the criteria for [Magnet designation](#)⁸⁰ can be found at Practice Greenhealth.

The U.S. Department of Health and Human Services (HHS) is asking health care institutions to [commit to decarbonize](#)⁸¹ and plan for climate resilience to best protect the communities they serve.

9. Programs and organizations offering assistance

HHS has developed a [Webinar Series: Accelerating Healthcare Sector Action on Climate Change and Health Equity](#)⁸² with sessions starting in July, 2022 twice a month through November 2022. Recordings are available.

Practice Greenhealth has information on multiple initiatives: buildings, chemicals, energy, food, greening the OR, sustainable procurement, transportation, waste, and water. [Practice Greenhealth](#)⁸³ is an organization in the United States that supplies personalized and vetted information to medical institutions. There is a fee based on the number of full-time employees (FTE). Participating hospitals save money by using the information provided.

[Healthcare without Harm](#)⁸⁴ is international, and information is free, but in the United States, the practical information is available through Practice Greenhealth requiring membership to access.

The Green Business Bureau suggests 5 ways to get started: improve energy efficiency and invest in alternative energy sources, redesign transportation systems to be more eco-friendly, reduce waste generation and reinvent waste management, conserve water, and create a sustainable healthcare culture. The [Green Business Bureau](#)⁸⁵ supplies services for a nominal fee per type of

institution or business. It has good information for the health professions but is not exclusively designed for the healthcare sector.

My Green Doctor is a free service particularly directed toward [medical offices](#)⁸⁶ rather than hospitals and has excellent workbooks on energy efficiency, renewable energy, solid waste and recycling, drug disposal and chemicals, transportation and commuting, and healthy foods in the office. It is supported by the My Green Doctor Foundation, a non-profit, 501(c)(3) charitable organization.

[Energy Star](#)⁸⁷ is an initiative of the EPA and Department of Energy and has excellent and free metrics and ideas but is not exclusive to the healthcare sector.

[The American Society for Healthcare Engineering \(ASHE\)](#)⁸⁸ has a sustainability guide which can be purchased. A single copy is \$35.

10. Funding your transformation

Probably the most helpful legislation to fund green energy transformation in healthcare is the Inflation Reduction Act (IRA). The IRA has some especially good news for nonprofit health systems. Healthcare Without Harm has a [“deep dive” into the IRA](#)⁸⁹ outlining elective pay, investment tax credits and bonus credits applicable to health systems. An [IRA savings calculator](#)⁹⁰ is available that would help employees evaluate cost and environmental savings for their own homes.

On March 5, 2024, the Department of Treasury issued a final rule that tax exempt healthcare organizations can now review as noted by the [Office of Climate Change and Health Equity](#).⁹¹

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[Emergency Rural Health Care Grant Program | Rural Development \(usda.gov\)](#)⁹⁴

USDA REAP Grant Money for [Rural Small Businesses](#)⁹⁵ provides grants for renewable energy or energy efficiency projects for small, rural, for-profit businesses. These grants could be applicable for medical offices or independent nursing homes or rehab facilities.

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Robyn Rothman, climate, and health policy manager for Practice Greenhealth

Shane Tedder, Sumati Kapoor, Joanna Ashford - leaders of the University of Kentucky Medical Center Sustainability Team

Bobby Clark, president, Sustainable Business Ventures Corporation

Carol Williams, project coordinator for fostering resilience and ecosystem services in Landscapes by integrating diverse perennial circular systems, professor at the University of Wisconsin

Judi Allyn Godsey, PhD, MSN, RN, Doctor of Nursing Practice Faculty, College of Nursing, University of Kentucky. Co-Founding Director of the Institute for the Brand Image of Nursing

Thomas Cislo, Community Activist - Covington KY

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Helpful Websites & Organizations

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85. The Green Business Bureau - <https://greenbusinessbureau.com/>

86. MyGreen Doctor - <https://mygreendoctor.org/>

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88. The American Society for Healthcare Engineering (ASHE) <https://www.ashe.org/>

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What can the Kentucky government do to help create a robust sustainable healthy healthcare system?

1. Recommend the Governor establish an Office of Sustainability with specific initiatives to assist and incentivize decarbonization of the healthcare sector.
2. Recommend the Kentucky Legislature adopt a law requiring disposable alkaline battery recycling.
3. Recommend the Kentucky Legislature incentivize solar installations and battery backup in healthcare facilities.
4. Recommend the Kentucky Legislature incentivize recycling and composting in all communities.
5. Recommend the Kentucky Legislature include sustainability requirements in any tax incentives the state gives to help healthcare facilities.