Climate change as a healthcare issue:

Implications for physicians and practice leaders

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INTRODUCTION

On a record-breaking hot day, a primary care clinic sees a surge of elderly patients presenting with dizziness, dehydration, medication complications and worsening heart failure. In another part of town, an emergency department is managing a spike in asthma exacerbations tied to poor air quality from nearby wildfire smoke. This comes after a recent storm disrupted supply deliveries, delayed elective procedures, and forced care centers to experience staff shortages due to transportation issues.

These are increasingly common realities for healthcare organizations — issues that often connect to climate change and actively shape patient safety, patient demand, clinical outcomes, and the operational stability of healthcare systems today.[1]

Because the topic is often politicized, practice leaders may be tempted to avoid it, limiting meaningful engagement from clinicians and healthcare leaders. Viewed in practical, nonpartisan terms, environmental concerns have clinical and public health impacts on care delivery and population health management.

The evidence base is strong enough to support increased attention and action. Rising temperatures, degraded air quality, and more frequent extreme weather events are contributing to increased rates of chronic disease exacerbations, infectious disease spread, injury, and mental health conditions.[1] Simultaneously, healthcare organizations face power interruptions, facility damage, supply delays, increased utilization, and rising costs of care tied to preparedness and recovery.[2]

There is also a sustainability dimension. The U.S. healthcare sector accounts for approximately 8.5% of total greenhouse gas emissions in the United States.[3] That footprint includes emissions tied to supply chains, pharmaceuticals, devices, purchased goods, and facility energy use.[3,4] The result is a system designed to protect health that is simultaneously perpetuating the environmental conditions that undermine public health.

For physician leaders and administrators, the work is to translate climate change awareness into management: a core healthcare priority that requires action at the bedside, within organizations, and across the broader system.

This article outlines how climate-related risks show up in clinical care and practice operations, examines the ethical responsibilities of the profession, and provides practical strategies for action. In doing so, it argues that the definition of the "good physician" is evolving to include not only the treatment of illness, but also leadership in addressing one of the most significant drivers of health in modern day.

BACKGROUND AND CONTEXT

Climate change as a driver of health outcomes

The health effects of climate change are layered, measurable, and embedded into clinical practice. Increasing global temperatures are associated with a rise in heat-related illnesses including heat exhaustion, heat stroke, and cardiovascular complications. These risks are particularly pronounced among vulnerable populations including older adults, individuals with chronic diseases, and those with limited access to cooling resources such as air conditioning.[5]

Air quality is another facet of climate change which affects health. Higher temperatures contribute to the formation of ground-level ozone and wildfires, which are growing in frequency and intensity, producing fine particulate matter that exacerbates respiratory and cardiovascular diseases. The EPA's Air Quality Index (AQI), the standard measure for how clean or polluted outdoor air is, now regularly triggers "Unhealthy" or "Very Unhealthy" alerts in cities that rarely saw such warnings a decade ago, a visible, real-time indicator that this is not a distant threat. As a result, healthcare systems are seeing an increase in rates of asthma attacks, chronic obstructive pulmonary disease (COPD) exacerbations, and hospital admissions tied directly to environmental conditions.[6,7,12]

Climate change also alters patterns of infectious disease. Changes in temperature and precipitation influence the distribution of vectors such as mosquitoes and ticks, ultimately expanding the geographic reach of diseases like Lyme disease and West Nile virus.[8] Additionally, extreme weather events can compromise sanitation systems and increase the risk of waterborne illnesses.

Beyond physical health, there are substantial mental health impacts of climate change. Patients affected by natural disasters often experience anxiety, depression, and post-traumatic stress disorder, while the broader awareness of climate-related risks contributes to chronic stress and uncertainty.[9]

Importantly, these health impacts are not evenly distributed. Climate change disproportionately affects populations that are already vulnerable due to socioeconomic factors, geographic location, or underlying health conditions. This amplifies existing health disparities and places additional responsibility on healthcare systems to address these inequities through a population health lens.[1]

Where practice operations and sustainability intersect

Healthcare organizations are both responders to climate-related health impacts and significant contributors to the problem.[1,3]

Recent analyses find that the majority of healthcare emissions are not generated directly in hospitals or clinics, but rather through the broader supply chain, highlighting the complexity of the challenge and underscoring the need for system-wide approaches to sustainability.[3]

Energy use within facilities also plays a role. Hospitals are among the most energy-intensive buildings, operating continuously and requiring significant resources to maintain safe and effective care environments.[4] While these demands are essential for patient care, they also contribute to the industry's overall environmental footprint.

This creates a unique dynamic within healthcare. Efforts to improve patient outcomes must now be considered in the context of their environmental impact, particularly when those impacts ultimately contribute to worsening health conditions.

Reframing climate change as a clinical and operational priority

When viewed through the lens of healthcare delivery, climate change functions as a determinant of health, a driver of utilization and a continuity risk.

For physicians, this means recognizing environmental factors as part of the clinical picture. Heat exposure, air quality, and environmental instability are increasingly relevant to diagnosis, treatment, and prevention. For healthcare administrators and physician executives, it means incorporating climate-related risks into operational and financial planning and strategic decision-making.

Leading organizations, including the American College of Physicians, have emphasized that climate change represents a "major threat to human health" and have called for urgent action across the healthcare sector.[10] Similarly, healthcare leaders and academic institutions have highlighted the opportunity for the sector to reduce its environmental impact while improving efficiency and patient outcomes.[3,4]

The practical impacts are straightforward:

- Patient volume and acuity
- Operational continuity and resilience
- Cost structures and resource utilization
- Community health outcomes.

By recognizing climate change as a healthcare issue, organizations can move toward actionable strategies that align with their core missions. This shift enables physician leaders and administrators to approach climate-related challenges with the same rigor and focus applied to other drivers of quality, cost, and performance.

DISCUSSION AND ANALYSIS

Build climate risk into patient care

The roles of physicians and advanced practice providers (APPs) is evolving in response to broader shifts in healthcare, including proactive care, population health management, and preventive medicine. Climate change intersects with each of these areas, requiring clinicians to consider environmental factors as part of comprehensive patient care.

In practice, this includes recognizing environmental exposures as risk factors and incorporating them into patient assessment and counseling. At a broader level, it involves contributing to efforts that reduce unnecessary resource use and promote sustainable care delivery.

This shift aligns with core principles of medicine, particularly prevention and the responsibility to protect patient well-being beyond immediate clinical encounters.

Clinicians as trusted communicators

Clinicians are uniquely positioned to translate complex scientific information into actionable guidance for patients. This is particularly important in the context of climate change, where misinformation and politicization can create confusion. In practice, this may include:

- Advising patients on managing heat exposure.[5]

- Discussing air quality risks and mitigation strategies.[6,7]
- Identifying environmental triggers for chronic conditions.[5,6,7]

These conversations can be integrated into routine care, particularly for high-risk populations, without significantly increasing time burden.

Implications for practice management

Increased utilization during extreme weather events, disruptions to supply chains, and infrastructure vulnerabilities are creating new challenges for practice administrators and physician executives.[2] For example:

- Heatwaves are associated with spikes in ED visits and hospital admissions.[5]
- Poor air quality events increase demand for respiratory care services.[6,7]
- Severe weather can disrupt staffing, scheduling, and access to care.

These impacts have direct implications for cost, efficiency, and patient outcomes. Organizations that fail to plan for these disruptions may face increased financial and operational risk.

Barriers to implementation

Despite the growing relevance of climate-related health impacts, many barriers persist:

- Limited education and training on climate-health connections.
- Time constraints in clinical workflows.
- Lack of standardized protocols or guidelines.
- Perception of climate change as outside the scope of healthcare.

Addressing these barriers may require both cultural and structural changes within healthcare organizations.

WHAT PRACTICE LEADERS CAN DO NOW

The following strategies provide a practical framework for action.

1. Integrate climate awareness into clinical care

Start with the patients most likely to be harmed: older adults, pregnant patients, infants and children, patients with COPD, asthma, or cardiovascular disease, patients with kidney disease, patients on medications affected by heat, outdoor workers, patients who rely on electricity-dependent durable medical equipment, and patients with limited housing, transportation or cooling.

- Identify vulnerable patients at increased risk (elderly, chronic illness, outdoor exposure).
- Screen for environmental factors affecting health.
- Provide targeted, practical guidance (e.g., hydration, air quality precautions).
- Document relevant environmental risks in the patient record.

These steps align with preventive care goals and can improve patient outcomes while reducing avoidable utilization.[5]

2. Treat climate hazards as continuity risks

Climate resilience should be folded into the practice's existing emergency preparedness and business continuity work. HHS's Climate Resilience for Health Care Toolkit is designed for healthcare emergency preparedness teams after a hazard vulnerability assessment, and the Harvard/Americares clinic toolkit offers practical resources for clinic administrators, providers and patients.[2,11]

- Develop and update emergency preparedness plans.
- Ensure backup power and infrastructure resilience.
- Expand telehealth capabilities to maintain access during disruptions.
- Establish clear communication protocols for staff and patients.

Investments in resilience can reduce both clinical risk and financial impact during extreme events.

3. Link sustainability to cost, waste, and access

Improving efficiency in care delivery can reduce both costs and environmental impact. Key strategies include:

- Expanding telehealth and virtual care models.
- Reducing unnecessary testing and procedures.
- Streamlining supply chain processes.[3,4]

These approaches align with proactive care principles and can support both financial and environmental goals.

4. Give clinician leaders a focused role

Clinician leadership matters most when the work touches clinical judgment and patient trust. Give these leaders a focused role in:

- Incorporating sustainability into strategic planning.
- Setting measurable goals for emissions reduction and efficiency.
- Aligning climate-related initiatives with organizational performance metrics.

Leadership engagement is essential for integrating climate considerations into core operations.

5. Measure what the practice can act on

Data can support both clinical and operational improvements. Organizations should consider tracking:

- Climate-related utilization trends (e.g., heat-related visits)
- Operational disruptions linked to environmental events
- Cost impacts of preventive vs. reactive care

Using data to inform decision-making can help organizations prioritize high-impact interventions.

CONCLUSION

Climate change is a factor shaping the future of healthcare delivery. Its effects are evident in patient outcomes, utilization patterns, and operational challenges across healthcare organizations.

This reality expands the scope of providers' clinical responsibility to include environmental awareness, patient education, and advocacy for preventive care. For healthcare administrators and clinician executives, it introduces new considerations for strategic planning, operational resilience, and financial performance.

Reframing climate change as a healthcare issue instead of a political one enables more effective engagement and action. By integrating climate considerations into clinical care and practice management, healthcare organizations can improve patient outcomes, reduce risk, and position themselves for long-term sustainability.

Ultimately, addressing climate change is more than a peripheral concern. It aligns with the core mission of healthcare to protect and improve human health, and it is an evolution of this role for today's leaders. ■

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NOTES

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