

To Be High Performing, the U.S. Health System Will Need to Adapt to Climate Change

April 18, 2018 | David Blumenthal, M.D. and Shanoor Seervai



If the U.S. health care system were a separate country, its \$3.3 trillion GDP would give it the fifth-largest economy in the world. It is also the world's seventh-largest producer of carbon dioxide, making it a major contributor to air pollution. The environment shapes our health system as well: recent catastrophes have shown how climate change can adversely affect the health care system's ability to meet patients' needs. These links suggest that health

care organizations have both an opportunity and an obligation to reduce greenhouse gas emissions, and take action to prevent harm to patients that occurs during climate-related catastrophes.

There may also be a business case for the health care industry to become more energy efficient. Health Care Without Harm, an international nongovernmental organization, is working with health systems worldwide to address climate-associated health risks. Their research shows that a handful of health systems have cut carbon emissions and developed strategies to cope with extreme weather events. In the process, these institutions seem to be saving money and fulfilling the obligations that come with the health care sector's size and mission to improve health.

The Case for Health Systems to Reduce Carbon Emissions

The U.S. health care sector emitted 655 million metric tons of carbon dioxide in 2011, which accounted for around 10 percent of the CO₂ generated in the U.S. that year. If CO₂ emissions are a barometer of all air pollution, then pollutants associated with the health care sector could be implicated in 10 percent (20,000) of the nearly 200,000 premature deaths attributable to air pollution annually in the United States.

In the absence of coordinated national governmental action on reducing fossil fuel emissions, greater responsibility falls on private and nongovernmental sectors. Some health care businesses have responded. Over the past decade, Kaiser Permanente, which serves 12 million Americans, has reduced greenhouse gas emissions by 29 percent while increasing membership by 20 percent. Kaiser is already one of the top users of solar power in the United States, and projected its annual greenhouse gas emissions would decrease from 806,000 metric tons to 617,000 metric tons by 2017 as a result of clean-energy purchases and other environmental initiatives.

Health systems abroad also have worked to reduce carbon emissions. The Sustainability Development Unit of England's National Health Service estimated cumulative savings of \$2.44 billion from energy measures — like reducing CO₂ emissions by 11 percent — in England over the past decade. This doesn't include additional health and environmental benefits like reduced pollution.

By lowering emissions, health systems and organizations may indeed contribute to better health. Events related to climate change, including extreme heat and cold and weather-related disasters, take a major toll on health. In 2017 Hurricanes Harvey, Irma, and Maria killed 200 Americans according to official estimates, though independent researchers put the death toll from Hurricane Maria alone at over 1,000, and rising. These hurricanes left millions of Americans struggling to access necessary hospital care, medicine, potable water, and power, to say nothing of their longer-term mental health impact.

The Case for Health Systems to Become More Resilient to Climate Change

Disasters also damage health care facilities, sometimes disabling them completely at precisely the time when their services are most required. Yet health systems can build infrastructure that is more resilient to natural disasters to protect their patients and facilities. After a devastating storm in 2001 halted almost all operations at the Texas Medical Center, the organization rebuilt with a “hazard mitigation plan.” The center built its own new heat and power utility plant at an elevation to avoid flooding. The plant emits less carbon, and is managed by an independent power company, eliminating dependence on the Houston utility grid. When Hurricane Harvey hit, the medical center remained almost fully operational.

New York City’s Bellevue Hospital, which serves more than 500,000 patients annually, was forced to close temporarily and move patients when Hurricane Sandy struck in 2012. When it rebuilt, many of the replacements for flooded electrical and mechanical systems were positioned on higher floors, and the hospital’s emergency power system added a generator to reduce dependence on the city’s grid.

Partners HealthCare, parent corporation for many of Harvard Medical School’s teaching facilities, is developing a climate adaptation plan in partnership with the city of Boston and the communities it serves. Partners recognized the vulnerability to climate change of its Spaulding Rehabilitation Hospital on Boston’s waterfront, and voluntarily adopted a set of best practices to make the building more resilient to rising sea levels. For example, it placed all critical patient care functions above the first floor, and deployed on-site heat and power generation.

As the recent hurricanes have revealed in Puerto Rico and other parts of the Caribbean, health systems’ lack of preparedness has inhibited recovery. As these islands rebuild their hospitals and clinics, well-distributed power sources and other climate-resilient infrastructure could be critical for withstanding future weather-related disasters.

Incorporating Sustainability into Practice

The push toward cutting greenhouse gas emissions and building disaster-resilient infrastructure is a relatively recent development in health care. But the cases described above, and others studied by Health Care Without Harm, illustrate how more health system leaders could incorporate environmental sustainability into their core practices. This might not only reduce the cost of care — one of the biggest woes ailing the U.S. health system — but also help fulfill the obligations that come with the industry’s size, its huge carbon

footprint, and its mission to improve health. Effective strategies for addressing climate change should become an essential attribute of high-performing health systems in the future, especially in the United States.

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