Can United States Healthcare Become Environmentally Sustainable? Towards Green Healthcare Reform

Cristina Richie

In 2014, the United States health care industry produced an estimated 480 million metric tons of carbon dioxide (CO2); nearly 8% of the country's total emissions.[1] Carbon dioxide emissions contribute to climate change, climate-change related health hazards, and international suffering.[2] At the same time, caring for those affected by climate change health hazards produces more carbon emissions. This cyclical response to climate change health hazards is self-defeating. The importance of sustainability in health care — as a business reliant on fossil fuels for transportation, lighting and energy, streams of resources, and operational functioning — is slowly being accepted in both the US[3] and abroad.[4] Yet, current efforts to green health care are incomplete since they focus on health care structures. The treatments provided in the course of the therapeutic relationship is the essence of health care — not the buildings that contain the practice.[5] Notably, hospital care and physician/clinical service sectors contribute the most CO2 within the US medical industry, with structures/ equipment and pharmaceuticals at third and fourth, respectively.[6]

In recognition of the need for comprehensive green health care reform, this article will first postulate reasons for a lack of environmental sustainability in US health care. Many of these reasons are on the national level where the physician-patient relationship remains a less frequently discussed pathway towards green health care reform. As such, this article will, second, identify current green health care initiatives in the United States in which patients and physicians participate. In many cases, other health care professionals participate in green initiatives, but this article will focus on physicians or doctors in order to narrow the scope of inquiry. Third, the rationale for participation in green initiatives will be explained. Fourth, the article will propose that, based on the environmental values of patients and physicians, health care insurance plans, which may be private or governmentally-run, and health care insurance companies can be petitioned for green health care reform. Health care insurance plans and health care insurance companies are largely absent from participation in sustainability initiatives; hence they must be involved to close the loop of sustainable health care delivery.

I. Lack of Sustainability in US Health Care

Reducing the carbon impact of global health care has been written about,[7] lobbied for,[8] and, in some cases,

Cristina Richie, Ph.D., *is a Fellow at the Institute for Advanced Studies in the Humanities at the University of Edinburgh and a Lecturer in Philosophy and Ethics of Technology at Delft University of Technology.*

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implemented.[9] This reifies both the support for sustainable health care and the possibility for enacting it. However, health care in the United States is not environmentally sustainable for several reasons. First, there is not national consensus on the importance of sustainability in domestic policy. Historically, US citizens and companies have fallen on both pro-environment and anti-environment sides of, for instance, permitting fracking in Michigan,[10] building the Alaska oil pipeline,[11] passing the Environmental Protection Act,[12] and supporting the Endangered Species Act.[13] More recent opportunities for the United States to join with other international political leaders in the fight against climate change have been disappointing. With the US withdrawing from the Paris Climate Agreement in 2019,[14] and obstinately refusing to move towards clean and sustainable energy,[15] actions which may move the US towards sustainability do not enjoy national consensus which would lead to a green overhaul of every sector — health care included.

Second, and similarly, the priority of health care in the United States varies widely.[16] While health care reform is consistently named as a top voting issue,[17] the push and pull over the Affordable Care Act, with lingering attempts to "repeal and replace," highlight the conflicting views of US citizens towards health care for all.[18] As private[19] or employer-sponsored[20] health insurance has been the norm in the United States, and with a strong dislike of the "Welfare state," US citizens tend to reject measures which would put individual taxes towards national health care. Given these fragmentations, a functionally coherent health care system has been impossible in the United States, let alone an infrastructure of sustainable health care. If the nation cannot move towards environmentally sound health care policies, then health care systems would need to reform themselves.

Yet, third, many health care and hospital systems fail to initiate or maintain sustainability initiatives. Complex individual and group factors ranging from diffusion of responsibility, to paralysis about the enormity of the environmental problem,[21] to the "bystander effect" — whereby an individual believes that someone else will address the situation — stymie environmental action[22] and derail attempts at greening health systems. While there are a variety of sustainability initiatives which hospitals in the United States may participate in, including collaboration with organizations such as Practice GreenHealth,[23] Health Care Without Harm,[24] or the now-retired Healthier Hospitals Initiative,[25] to implementation of sustainability measures in individual facilities — such as recycling — these are voluntary and do not address health care delivery. Current sustainability models that focus on the structural aspects of health care are limited in their efficacy as they can only "green" buildings or medical infrastructures and rarely examine the carbon of the practice of medicine itself.[26] This is equivalent to making an automobile plant solar-powered, but continuing to manufacture cars that run on fossil fuels.

Fourth, the environmental movement has failed to offer health care an effective paradigm for sustainability. The mantra "reduce, reuse, recycle" is insensible to medical consumers and health care providers in their day-to-day work, which relies on quick-use disposable instruments. Health care is not a highly visible carbon polluter, even though it has significant carbon emissions. An image of a destroyed rainforest has *gravitas*; a dead fur seal invokes pity. Less persuasive is the environmental destruction associated with the polypharmacy of an elderly woman or a young man in a long-term care facility. Similarly, environmental activists have focused on issues with a clearly identifiable aggressor and victim, such as hunters of the endangered grey wolves or nuclear power plants dumping toxic waste in urban areas. But, unlike other environmental transgressions, every person is culpable for the carbon emissions of health care. This is a matter of degree, not kind. Although there is not equitable use of — or access to — health care in the US, facilities stand ready to use, emitting carbon and contributing to the national health care carbon footprint. Individuals protect themselves from the scrutiny of environmental ethics by normalizing high-carbon health care use.[27] Unlike private transportation, for instance, which can be exchanged for more sustainable options, alternatives to resource intensive medical treatments are not highly visible. Of course, all health care is optional, many medical procedures have limited clinical benefit, or are futile[28] which means carbon is wasted without meeting health goals.[29] Moreover, preventative care, such as avoiding alcohol and tobacco, eating within guidelines, and getting enough exercise reduces illness[30] and therefore saves health care carbon which is incurred from treating preventable diseases and conditions.

Finally, the invocation of biomedical ethics to support sustainable health care is met with resistance under the erroneous belief that health care ought not be accountable for resource use, since unlimited medical treatments are an inviolable right.[31] Public discussions about health care prioritization often devolve into panic over allocation and triage.[32] Both anger and fear emerge when ICUs, elective surgeries, life-extending treatments, and experimental therapies are discussed for cost containment. This quickly turns to rhetoric about death panels.[33] Many of the themes which mark the resistance to conversations about

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health care resource allocation redouble when sustainability is invoked. To posit carbon containment as a rationale for health care delivery reduction is a steep fight indeed.

Despite the lack of a sustainable health care industry in the United States, there are opportunities for green health care reform. In absence of national policy, patients, physicians, and health care plans are essential — yet often overlooked — components in moving towards green health care reform.

II. Participation in Green Health Care Initiatives

A green initiative promotes environmental sustainability, with "sustainability" used in the traditional sense of the word, in reference to the 1987 Bruntland Commission report, which defined "sustainable development" as "meet(ing) the needs of the present without compromising the ability of future generations to meet their own needs."[34] Although there are critiques of both the possibility and legitimacy of the term,[35] "sustainability" remains a key concept in environmental and biomedical ethics.

It should be noted that sustainability does not imply a constant level of resource use or carbon emissions if that level is toxic, harmful, or unjust. In rural Ghana, a sustainable health care system may need to increase, expand, and accelerate medical access. In the United States, a sustainable health care system will need to reduce carbon emissions and minimize resource use. Sustainable health care can be achieved through policies, laws, or initiatives.

"Green" initiatives may be identified by either their ideological intention to make health care more sustainable or by their functional outcome in actual reduction of health care resources.[36] In environmental ethics, as with many social movements including civil rights, feminism, and LGBT liberation, there are philosophical debates as to the preferability of ideological ethics which promote a value, versus functional ethics that produce the desired result, often through law. The former attempts to transform morality by appealing to the intrinsic rightness of the action. The latter is less concerned with the motivation because the outcome benefits the cause.[37]

In sustainable health care, an "ideological green initiative" may have the intention of carbon reduction, but in actuality may be impotent to reduce the emissions of health care because it is poorly-designed, or unsustainable once implemented, or because of positive net emissions. For instance, sending out medical sharps for sterilization may reduce the use of syringes, but the processing and shipping impact may result in more environmental waste. Of course, many ideological green initiatives actually do reduce carbon emissions.[38]

On the other hand, "functionally green initiatives" will save resources and reduce carbon emissions of health care, but may have no environmental commitment attached to them.[39] For instance, a health care system that purchases the most economical plastic-ware may incidentally find that these are also the least resource intensive. Moreover, a functionally green initiative may be unethical. Barriers to care because of medical deserts are certainly "green" in that fewer people will use health care resources in a particular area, but they are morally problematic. Of course, a functionally green initiative might have a very strong environmental commitment behind it.

Despite the lack of a sustainable health care industry in the United States, there are opportunities for green health care reform. In absence of national policy, patients, physicians, and health care plans are essential — yet often overlooked — components in moving towards green health care reform.

This article recognizes the overlap between ideological and functionally green initiatives and will highlight both in order to provide the widest base of outlets towards sustainability. The distinction between ideological and functionally green initiatives ought to be employed in any discussions of green health care reform. Without a shared understanding of how the term "green" is being used, the potential or actual efficacy of the initiative will be difficult to evaluate.

Having thus defined sustainability and the parameters of green initiatives, this section will examine patient and doctor participation of green initiatives in the United States. Patients participate in green initiatives through education, carbon awareness, and ecotherapy. Physicians participate in green initiatives through activism, green health centers, green teams, continuing education, and green prescriptions. These are representative, but not comprehensive, initiatives.

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A. Patients

1. EDUCATION

Many people are adapting to climate change through concerted efforts to be more sustainable. Just as restaurant patrons are encouraged to ask where their food comes from, opening a dialogue about climate change is on the agenda of doctor's visits.[40] Becoming educated about sustainability in health practices may help patients be more active in their health care.[41] Green education gives patients a valuable tool for advocating sustainability in other areas of medicine. For instance, if a patient knows that sterilization and reuse of instruments reduces resource use at the ophthalmologist, they can then be empowered to ask for sterilized instead of disposable tools at their next primary care check-up. Making this request is a reflection of autonomous decision-making and informed consent.

2. CARBON AWARENESS

Carbon emissions and resource use are familiar terms in the lexicon of environmentally aware citizens and thus environmentally aware patients. As patients educate themselves about sustainable practices, they may use carbon calculations to determine the carbon impact and alternatives, of medical treatments.[42] Increasingly, studies are published on the carbon emissions of individual medical procedures. Data is available on cataract operations,[43] heart bypass operations,[44] conventional hemodialysis,[45] caesarian sections and vaginal childbirth,[46] reproduction,[47] hysterectomies,[48] Critical Care Unit stays,[49] randomized controlled trials,[50] and a variety of dental[51] and mental health[52] services. Carbon calculations are a valuable tool in determining the environmental effects of health care, while also meeting the desires that many patients have to understand the impact of their health choices on the environment. Although patients might not always opt for lower carbon procedures, just as they may not choose sustainable transportation, they may balance their medical consumption with being intentionally more sustainable in other areas of life, like diet or family planning.[53]

3. ECOTHERAPY

In addition to carbon awareness in traditional health care, patients may seek unconventional ecotherapy. Ecotherapy is not necessarily sustainable, but it has environmental resonance.[54] Ecotherapy may encompass "prescriptions for nature"[55] such as walks in a forest, going outside more,[56] attending a nature retreat, or participating in other forms of open-air recreation.[57] While the medicalization of nature is problematic, as it may lead to instrumentalization, many patients find medical legitimacy through the word "therapy" and retain use of the term. To be sure, patients may still utilize traditional medicine and may not be concerned with reducing their impact on the environment. In fact, if ecotherapy is used as a conjunctive to traditional medicine it can require more total resources. This inconsistency is part and parcel of health care; even as some patients try to be healthier in one area of life, such as not smoking, they may flout health care wisdom in other areas, like physical activity.

B. Physicians

1. ACTIVISM

The notion of activism — particularly in the environmental movement — often invokes the image of protests, people holding signs, chaining themselves to a tree, or acts of civil disobedience that may result in arrest.[58] While using the label "activist" in ecology may be viewed by some as synonymous with a liberal agenda, white privilege, or even a eugenic Malthusianism, physician activism in environmental initiatives is frequently indicative of a dedication to the health of all, not just the elite few. Physicians for Social Responsibility (PSR) have been active for over 50 years. As the group developed, an "Environment and Health Committee" was added as an area of focus. Topics under this banner include environmental concerns such as fracking, climate and health, and clean energy.[59] PSR are motivated by activism on "issues that represent the gravest dangers to human health." Doctor activists also urge the nation to act on climate change[60] and draft position papers on climate change and health.[61]

2. GREEN HEALTH CENTERS

Physicians are concerned with the amount of waste they emit in the course of their work;[62] with the structural design of their health care facilities;[63] and with the toxicity of their work environment.[64] The University of Nebraska Medical Center (UNMC) began a Green Health Center project almost two decades ago with the objective to "engage in educational and research programs that support this aim (of sustainability) and to begin the process of redesigning our own institution toward sustainability."[65] Other medical centers, particularly those affiliated with universities, have followed by developing their own pathways to greener health care facilities.[66] Green health centers across the country are supported by physician leadership and maintained by policies and practices within hospitals.

3. GREEN TEAMS

Green Teams are a smaller group of health care professionals who may or may not be situated within a

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Green Health Center. At the Massachusetts General Hospital for Children at Harvard Medical School, a Green Team of medical professionals were organized "to develop high impact strategies towards the creation of a zero-carbon emissions model in the PICU" (pediatric intensive care unit).[67] The Green Team collected waste and itemized the excess. By identifying areas for waste reduction — such as returning unused equipment to a storage space — they were able to reduce their waste while providing excellent patient care.

4. GREEN PRESCRIPTIONS

Some physicians attempt to green their prescribing practices through a mixture of preventative health care advice and low-carbon treatments. It is widely documented that plant-based diets have numerous health benefits and are less resource intensive than meat based diets.[68] In recognition of this, some physicians are recommending plant based diets as a medical standard for global carbon reduction and better health outcomes.[69] Maximilian Andreas Storz declares, "plant-based diets are a powerful tool — not using and advocating for them is not only unethical, but harms patients and the planet alike."[70] Vegetarian and vegan diets have become more prevalent in society and thus more accessible.[71] Green prescriptions combine the legitimacy of physician-directed advice with environmental ethics.

5. EDUCATION

Physicians provide education to peers through Grand Rounds, on-the-job training, and in continuing education. Medical educators argue that "health care providers require training on the connections between the climate, ecosystems, sustainability, and health and their responsibility and capacity in changing the status quo,"[72] which is largely wasteful. In an effort to support this education, Dr. Rebecca Philipsborn at the Emory School of Medicine has developed a virtual 4-week *Climate Change and Health* curriculum, which includes topics and syllabi to be implemented in other medical schools.[73] It should also be noted that the UK also has a significant amount of curriculum development around sustainable health care.[74]

Other educational resources include articles on functionally green initiatives, which may employ concepts such as "Choosing wisely,"[75] not using "Too Much Medicine,"[76] avoiding "do not do" practices,[77] optimizing "high value care,"[78] or minimizing its opposite — "low value care."[79] Publications written in different countries are accessed by those in the United States, thus reflecting the culturally relevant reach of green physician education.[80]

III. Rationale for Participation in Green Initiatives

Highlighting the green initiatives that patients and physicians participate in and probing their motivations for such participation permits strategic development of areas of consensus in sustainable health care, which can lead to green health care reform. This section speculates on broad trends in participation in green health care initiatives. Patients appear to participate in green initiatives based on a valuing of nature and the desire to reduce health care issues. Doctor participation in green health care initiatives stems from an investment in health promotion and discomfort with wasteful hospital practices.

A. Patients

1. VALUE OF NATURE

Sustainability is important to patients.[81] Patient involvement in sustainable health care — as with other pro-environmental actions — may be driven by a concern for nature having intrinsic worth, or the assessment that nature has instrumental worth.[82] In the former, nature should be preserved for the good it has in itself. This is similar to a "deep ecology" perspective,[83] where animals and plants are independently valuable. In the latter, individuals want to enjoy nature, use natural resources, or have these opportunities available for future human generations. Both the non-anthropocentric and anthropocentric perspectives guards against overuse of health care resources in order to create a better environment.

2. REDUCE HEALTH ISSUES

"Climate change anxiety" has emerged as a new mental health issue[84] affecting those who worry pathologically about the deteriorating planet.[85] Patient participation in green initiatives may be an attempt to manage climate change anxiety, or it can be part of therapy for dealing with anxiety. Climate change anxiety may be regarded as an American luxury, whereas psychological issues arising from climate change health hazards — such as post-traumatic stress from climate events and fear of experiencing future climate change health hazards — require global attention. However, the entire spectrum of health care issues related to environmental destruction warrant attention.[86] By reducing resource use in health care, patients may be able to minimize health issues associated with climate change.

B. Physicians

1. HEALTH PROMOTION

It could easily be argued that a doctor's primary motivation for practicing medicine is the health and

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wellbeing of patients. Since climate change is a recognized health threat, some professionals see it as their obligation to practice sustainability measures in order to reduce the effects of climate change.[87] Patient health could be subsumed into the broader obligations toward public health, the commitment to the healing profession, and professionalism.[88] Physicians who participate in green initiatives may do so as a matter of personal integrity and professional responsibility.[89]

around the themes of "health" and "ecology." Health — as an umbrella term for the wellbeing and harmony of the body and the planet — emerges as a focus of green initiatives. Both patients and physicians desire good physical health, which includes absence from pollution and climate events. They also seek mental equilibrium by avoiding eco-anxiety and environmental moral distress. Many public health paradigms braid physical, mental, and environmental aspects of well-being into one holistic model.[96] These paradigms can be integrated into broader aspects of health care. Ecology is also an encompassing concept, which includes resource conservation, waste reduction, sustainable care, and carbon management. Both patients and physicians invested in green health care are working to lighten their carbon impact. It is likely that other forms of resource reduction would be considered in US health care as well.

Effective health care reform will require compliance across the board. Health care administrators must support sustainable health care initiatives financially and socially through hospital policies. Governmental structures, including health care programs must be invested in sustainable health care through federal and state regulations, and local policies. Accreditation bodies that mange medical education, building safety, and health care professional licensure need to integrate sustainability into their ethos.

2. DISCOMFORT WITH WASTE

Physicians and other health care providers are at the terminus of the production chain. As they provide care, they use and dispose of resources. When surveyed, a majority of surgeons and physicians were troubled by the amount of waste they generate.[90] Obstetrician/gynecologists[91] and ophthalmologists exhibit similar concerns.[92] The concept of moral distress has generally been applied to end-of-life care,[93] but it is also relevant for compulsory participation in unsustainable health care practices.[94] Green initiatives may be an attempt to counteract environmental distress.

IV. Towards Green Health Care Reform

Effective health care reform will require compliance across the board. Health care administrators must support sustainable health care initiatives financially and socially through hospital policies. Governmental structures, including health care programs must be invested in sustainable health care through federal and state regulations, and local policies. Accreditation bodies that mange medical education, building safety, and health care professional licensure need to integrate sustainability into their ethos.[95] These are, by and large, beyond the scope of this paper. Here, the focus will remain on developing areas of consensus for patient and physician participation in sustainability initiatives, since this at once provides a path to, and legitimizes, green health care reform.

Among patients and physicians participating in green initiatives, there appears to be consensus

Green health care reform will require sweeping implementation of sustainability initiatives. Patients and physicians can lobby health care plans and health care insurance companies by highlighting the values of health and ecology. The former can be developed through green health care plans for policyholders and the latter through green health care insurance companies.

A. Health and the Green Health Care Plan

The most recent statistics on health care coverage in the US show that two thirds of Americans are privately insured.[97] As part of the free market, the American health care system has the potential for great agility as it seeks to entice the individual patient-consumer. Sustainable health care plans can utilize existing frameworks of insurance coverage while respecting the environmental preferences of individual policyholders by, for instance, offering a "Green" tier of coverage in addition to Bronze, Silver, Gold and Platinum.[98]

A Green tier health care plan would be a more sustainable choice than current health care insurance

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options. For instance, a Green tier health care plan may have a variety of low-carbon procedures to choose from. Preventative care initiatives, such as gym subsidies,[99] would be more generously reimbursed, while extended medications, low-success treatments, or elective procedures may be limited. Green tier health care plans could be similar to the multi-level approach proposed by Tom Beauchamp and James Childress, whereby basic health care plans include "public health measures and preventive care, primary care, (and) acute care,"[100] while minimizing financial burden to the policyholder. While there may be a concern that a Green tier health care plan would be the default offered by parsimonious employers, thus resulting in minimal coverage,[101] sustainable health care plans may not be less expensive than other options.

Indeed, the Green plan could cost more, and a percent of premiums could be put towards ensuring that the health care plan provider is offering the most sustainable option, similar to buying "carbon offsets" when one purchases an airline ticket[102] or paying more for a health care plan with more coverage. In the former scenario, the extra cost is voluntarily incurred for the environmental trade-off, or because it is required by law.[103] In the latter, the extra cost is seen as value-added to a necessary service. As with other sustainable, but more expensive options, the individual who chooses the green health care plan would likely feel satisfied knowing that she is making the better environmental choice.

Since health care plan tiers are the voluntary choice of policyholders, the individual would enjoy the apparent "sacrifice" they are making in limiting certain high-carbon options, while still being assured of quality, value-driven care. An analogy might be choosing a vegetarian meal at a restaurant. Not everyone will want to "give up" meat, but those attuned to health, carbon expenditure, and the moral claims of others will readily make a sustainable choice, and indeed, be distressed if there are not opportunities to express one's environmental values. And, like any health care plan, an individual could switch to a different tier during open enrolment if they wanted more resource intensive options, or pay out of pocket for non-covered services.

Companies would be incentivized to offer Green tier health care plans to make themselves more appealing for employee recruitment.[104] Shrewd health care plans will find inexpensive ways to offer sustainable health care that maintain access to basic health needs in response to patient and doctor demands. Even if a Green tier plan is not offered as part of health care reform, best environmental practices should be incentivized; the green option should be the economical option.

B. Ecology and the Green Insurance Company

Governmental regulations which would adopt a comprehensive, legally binding model of sustainable health care — such as the one utilized by the United Kingdom's National Health Service—would likely be rejected by US residents as overly restrictive. However, the health care free market gives great latitude for health care plans (e.g., Blue Cross or United Health Care) to determine which medical treatments and services they will offer based on patient preferences. Moreover, the free market and decentralization permit companies to become more sustainable independently.

A green health care insurance company would be accountable for environmentally sound practices. From fair-exchange coffee, to "cruelty free" cosmetics, to locally grown food, more customers are willing to support companies that unite ethics with the product they supply. Each year, a handful of articles call on health care to divest from fossil fuel sources.[105] Sustainable energy and investment in renewable sources are two ways an insurance company can be green. Alternatively, a green insurance company might choose to partner only with health care facilities that are members of organizations which actively participate in sustainability initiatives, such as Practice GreenHealth,[106] Health Care Without Harm,[107] the Healthier Hospitals Initiative,[108] and the Catholic Health Association.[109]

To be sure, insurance companies are dependent on many different supply chains. For instance, pharmaceuticals are known environmental menaces[110] and consistently one of the largest carbon emitters in health care.[111] Requiring environmental accountability from drug companies would be a significant first step for greening insurance companies, with ample data to support the move.[112] Once sustainability measures are in place, insurance companies can brand themselves as green, thus rising as visible leaders in green health care reform.

V. Conclusion

While there is justified suspicion about American health care — which is capitalistic and atomized[113] — the potential for individuals to change the system is also the greatest strength. Historically, health care policymakers have been amenable to stakeholder requests and willing to comply with patient and doctor demands. Such was the case with lowering the cost of HIV-medications.[114] Many patients and physicians recognize that a healthy body and mind depend on a healthy planet. Their collective actions can stimulate green health care reform.

Cheryl Macpherson, Elise Smith, and Travis Rieder maintain, "given the goals of health care, claims of

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and calls for health promotion are hypocritical unless they involve strategies and policies that explicitly protect environments and natural resources."[115] Patient and doctor participation in green initiatives, in tandem with advocacy, makes green health care reform not only possible, but truly a requirement of climate change.

Note

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