

Environmental Sustainability in Medicine: An Ethical Study

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Climate change is predicted to negatively impact human health across the globe. Medicine, a profession devoted to caring for the sick, must decide on what role it might play in addressing this global health threat. I argue that physicians should take action in at least one of the following forms: advocating for environmental policy, reorienting healthcare institutions toward sustainable practices, and embodying values of sustainability in their private lives.

Broadly speaking, “medicine” can include governing bodies (professional associations), healthcare institutions (i.e., clinics and hospitals), and individual practitioners. Unless otherwise specified, by “medicine” I refer to all of the above. Fundamentally, the field of medicine aims to alleviate suffering from disease and to promote health in human beings. While its therapies are evidence-based and constantly undergo revision by researchers around the world, its practice is grounded in the physician-patient clinical encounter. Indeed, the central threads of bioethics (i.e., autonomy, beneficence, non-maleficence) largely concern the duties of the physician with respect to this relationship. Society bestows upon physicians a degree of power on account of their knowledge of sickness and health. In turn, physicians are held to a professional standard with the expectation that this knowledge will be used to benefit members of society.

A necessary target of medicine’s pursuit of knowledge is the causes of disease. To cure a patient entails ridding the patient of disease. Ideally, this entails mitigating the underlying cause to ensure the disease won’t reoccur. This orientation of looking toward the causes of disease has pointed medicine “upstream” – that is, to the causes of the causes. Yet many diseases have significant factors that are attributable to the broader societal context within which medicine operates. Lung cancer and cigarette smoking, or poor diet and diabetes, are just as related to the patient’s social context as they are to the patient’s physiology. The challenge for medicine is that effecting societal change is beyond its scope. Herein lies the relationship between the field of medicine and public health. Where medicine treats a patient, public health treats a population. As a function of the state, public health not only has the responsibility to protect a population from disease but also the means for doing so. Through public policy, and occasionally through suspending the rights of an individual for the sake of the population (e.g., quarantining a

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patient with an infectious disease), public health seeks to direct its population toward health.

The Problem

Climate change is recognized as potentially being the biggest global health threat in the 21st century, putting the lives and wellbeing of billions of people at risk (Costello et al. 2009). Climate change refers to the rising global temperatures that are caused by the increase of greenhouse gases. Greenhouse gases (e.g., carbon dioxide) are gases that absorb infrared radiation from the sun and consequently keep the planet warm. An increase in greenhouse gases therefore increases the amount of radiation from the sun retained in the atmosphere, thereby warming the planet. The burning of fossil fuels (oil, coal, natural gas) increases greenhouse gases by releasing the carbon that was buried underground into the atmosphere.

Increasing temperatures will directly impact health. Heat waves have been positively correlated with increased mortality (McMichael et al. 2006). Increasing temperatures will impact the spread and transmission rates of vector-borne diseases (Costello et al. 2009). Climate change will compound existing food insecurity; Costello suggests that half of the world's population could face food shortages by the end of the century due to rising temperatures impacting farmers' crops. Extreme weather events, increasing in number due to a warmer planet, cause associated health problems such as contamination of potable water leading to disease, destruction of crops resulting in food shortages, and malnutrition (Costello et al. 2009). It has been estimated that climate change has been responsible for 5.5 million DALYs lost and 150,000 deaths per year since 2000 (Haines et al. 2006).

Solutions can come in many forms. Given that the fundamental issue is a reliance on fossil fuels, all strategies should involve a combination of reducing traditional (that is, fossil fuel-dependent) energy consumption while developing alternative energy sources that do not emit greenhouse gases. I take "sustainable practices" to refer to any combination of the aforementioned strategies.

Given the global scope of the problem, and the high dependence on fossil fuels shared across the planet, the necessary tools for engagement must include public policy. Nevertheless, the fact that it threatens the health of individuals implicates the field of

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medicine. Just as medicine encourages healthy behaviours (e.g., healthy eating, exercise) and discourages unhealthy behaviours (e.g., smoking), so too should it encourage sustainable practices and discourage non-sustainable practices. The question becomes in what form and to what extent. But first, what are the underlying tensions?

Tradeoffs

For all decisions in medicine, there are necessary tradeoffs when resources are finite. Consider two lenses that influence the calculation. First, investing in mitigating climate change, which, while already affecting health, will place the greatest burden on future generations, necessitates redirecting resources that could otherwise benefit the present population. Therefore in the first case there is a trade off between present versus future needs. Second, there is great uncertainty as to whether actions that mitigate climate change will have appreciate effects. Ensuring the most effective use of resources must therefore balance the relatively good understanding of the chances of success in treating present patients with the poor understanding of potential benefits accrued for a future population. However this last point cuts both ways. Just as there is a risk that action will have little effect, so too there is a risk that inaction exacerbates effects. It is possible there is an opportunity cost by delaying action. That is, delaying action may forfeit the benefits that would be accrued by implementing sustainable practices sooner. Therefore in the second case there is a tradeoff between varying degrees of certainty.

Given the two tradeoffs discussed, consider the positions necessary for arguing against sustainable practices. One tack would be to argue that the present population doesn't have an obligation to the future population, and therefore prioritizing the present population at the expense of a future population is acceptable. However, the principle of justice, one traditionally upheld by medicine, renders this position tenuous.

In this context, justice maintains that all people deserve equal access to health regardless of particular traits (e.g., sex, race) that have nothing to do with an individual's choices. It follows we would want equal health access regardless of place or time of birth. That is, it would be unjust to knowingly disadvantage a future population for the sake of a present population in the same way it would be unjust to knowingly disadvantage one sex or race for the sake of another. No single group is entitled to disproportionate

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resources and access to health.

Nevertheless it can be tempting to discount the rights of future people, maybe because they are far removed from oneself and their suffering is less salient. This in itself is not an argument against their rights. A quick appeal to the veil of ignorance, a thought experiment designed to verify the morality of a given societal issue, confirms this to be the case. The experiment runs as follows. An individual is tasked with allocating resources across all members of a society. However, the veil of ignorance prevents the individual from knowing anything about his own position in society. The only way the individual can assure himself access to the resources distributed will be to distribute them fairly, regardless of various traits (e.g., sex, race). Similarly, if we add to the possible traits in a society the time of birth (e.g., present day or fifty years from now), a reasonable person behind the veil of ignorance would presumably distribute the resources fairly between the present and the future. Therefore, a future population has the same right to fair access of health.

A second tack would be to grant that the present population does have an obligation, however due to the lack of certainty in whether sustainable practices could effect change, the cost/benefit analysis of action doesn't outweigh that of inaction. That is, the ratio of the costs (implementing sustainable practices) to the predicted benefits (preventing future suffering) fails to outweigh the ratio of the predicted costs (future suffering) to the benefits (maintaining the status quo). This argument could hold under a number of circumstances. Either future adverse health effects are mild, sustainable practices are prohibitively expensive or ineffective, or there is no penalty in delaying action (where presumably over time the certainty of effective interventions would increase and the costs would decrease). Exploring this calculation in depth is well beyond the scope of this essay and will therefore be granted as neutral.

Actions

Until there is clear evidence arguing against sustainable practices, a necessary step forward involves exploring in which ways medicine could implement sustainable practices. Medicine has three potential points of contact with respect to society. The first is professional associations (e.g., Canadian Medical Association). The second is

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healthcare institutions (e.g., hospitals, clinics). The third is individual practitioners (e.g., physicians, nurses).

Actions i) Professional Associations

The professional association is an opportunity for the field to speak with a unified voice, thereby amplifying the voices of individual physicians by communicating policy suggestions. An argument against advocacy may suggest public policy is well beyond the realm of the patient-physician relationship and beyond the expertise of medicine. Furthermore, it has been argued that requiring medical professionals to engage in political advocacy reduces medicine as a whole to a political interest group (Huddle 2011). Doing so would dilute medicine's resources as well as its credibility. Rather, the field of medicine should leave policy making to the policymakers. By default, medicine should be apolitical.

Except being apolitical doesn't exist. Non-partisanship (i.e., not blindly supporting one political party) is one thing, but abstaining from political engagement altogether is fantasy. Abstaining is not equivalent to being a neutral observer on the sidelines. Quite the opposite, inaction and complacency at best leave room for inequitable policies to develop and at worst imply acceptance of the status quo. It is not clear that medicine should accept, implicitly or not, that future populations would be significantly disadvantaged with respect to access to health.

If medicine aims to improve the health of the population it serves, there is necessarily a political component. But to what end? Ultimately, policymakers and politicians will decide on allocating resources. And they certainly have access to more relevant information than any single physician working at a community clinic. It would be arrogant to suppose that medicine has privileged access on the best path forward. All the same, medicine, by definition, has specialized knowledge with respect to health and disease. It is important to not conflate the difference between advocating for a policy and claiming to know how best to allocate resources versus simply advocating for a policy to highlight its importance. Another thought may be that medicine should wait to be consulted and otherwise abstain. However it is unlikely policymakers will ask for advice unless there is an awareness of the problem's existence. Thus the onus is on medicine for disseminating information concerning health.

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Advocacy does require the use of time and resources of individual practitioners, which arguably comes at a cost to individual patients. However, the very purpose of such a professional association is to join forces and consequently minimize the work of any single individual. The Canadian Medical Association's MD-MP program aims to do exactly that by pairing physicians with their local MP. Ultimately, advocating for public policy without concretely implementing changes at work and home is the least demanding in terms of time and energy, and in this sense, arguably maintains the best care for the present population.

Actions ii) *Healthcare Institutions*

This is arguably where the tension is greatest between resource allocation for present and future populations. However there are many ways of engaging with sustainable practices and it is not clear that each is financially burdensome. For example, a common target for implementing sustainable practices is energy conservation. Not only would this be reducing energy consumption, but it would also likely reduce related costs in the long-term. A less tangible benefit lies in the symbolism of healthcare institutions. As much as hospitals represent disease, they are symbols of health and healing. Although less tangible, it is possible that healthcare institutions leading by example would have downstream effects on the surrounding community with respect to the viability of sustainable practices. The fact that there exist organizations in healthcare promoting such initiatives (e.g., Healthcare Without Harm, The Canadian Coalition for Green Healthcare) suggests at the very least such programs are feasible.

Actions iii) *Individual Practitioners*

Finally, consider individual practitioners. This is arguably where the tension is greatest concerning efficacy of implementing sustainable practices. After all, climate change is a global problem. Any benefits resulting from a single individual are practically invisible. Furthermore, suggesting changes in a professional's private life crosses the private/professional boundary. Whereas advocacy and healthcare institutions can fall under professional responsibilities, implementing changes in one's private life is arguably removed from any set of professional duties. Indeed, such a boundary is necessary for the wellbeing of a healthcare practitioner. If a professional had no such boundary, he would be seeing patients endlessly, which paradoxically could even negatively impact the care

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he provides for patients. Consequently maintaining a professional/private boundary is essential for quality professional care.

First consider the distinction between private and public duties. In this case, this distinction is false for the following reason. It is not by virtue of being a healthcare practitioner that an individual has a carbon footprint. One's carbon footprint follows from simply participating in society. The relevance of being a healthcare practitioner is that one should recognize the principles of justice and fair access to health. Should these arguments be persuasive, such an individual practitioner can address his carbon footprint by reflecting on his engagement with society. This is something that transcends professionalism because it permeates an individual's day-to-day.

Consequently, the costs associated with implementing sustainable practices are nevertheless private rather than professional costs. As in every avenue of action, there is a spectrum of options, from bicycling one day a week to buying local food at the farmer's market, to decreasing unnecessary consumption and waste. What is noteworthy is that it is possible to adopt sustainable practices on an individual level that arguably decrease financial burdens. Either way, unlike advocating for policy and implementing sustainable practices at healthcare institutions, the financial burdens for individuals living sustainability are relatively small. What is demanding of the individual is not the financial burden but the psychological challenge of changing one's habits in a society that, until recently, typically leans against such sustainable changes. It requires explicit mental effort and discipline, which in a sense is a use of private resources, in order to assess one's (minor) contributions to climate change and adjust one's behaviour accordingly. Whether this cost is prohibitive for any practitioner remains a personal decision. In this respect the distinction between private and professional is fair.

A central component in determining whether such action is worth it for an individual will be how the efficacy is calculated. It is true that any individual's actions are negligible for such global problems. Yet paradoxically, this is not an argument for inaction. A sufficient parallel is the case of voting in a democracy. While no single vote determines the election, the integrity of the process is nevertheless dependent on a high voter turnout. It is a process of emergence, where the whole is greater than the sum of its parts.

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This may seem to imply a practitioner should act only if there is reason to believe that all members of society are also implementing sustainable practices. In a variation on the prisoner's dilemma, a practitioner must choose an action whose efficacy depends on whether or not other members of society made the same choice. The dilemma arises because the practitioner is unsure of how society will act, and consequently the practitioner must make a decision without knowing its effect. Therefore, the calculation for the practitioner is whether there is a sufficient reward in simply acting toward sustainable practices regardless of the associated costs.

Conclusion

This essay has shown that medicine has a duty to implement sustainable practices for the sake of a future population. There are several avenues through which the field of medicine can implement sustainable practices, each with varying costs and tradeoffs. The way these are measured will undoubtedly vary between individuals. Consequently there is no one-size-fits-all. Nevertheless, what should be common to all healthcare practitioners is an explicit recognition of climate change as a health problem. Practitioners should in some form choose to implement sustainable practices. If climate change has reminded our society anything, it is that all actions, however seemingly small and insignificant, have consequences. Medicine should take this message to heart and lead by example in implementing sustainable practices for the sake of future populations.

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