Sustainability in medical ethics education

Briefing for the Institute of Medical Ethics Board of Trustees

# About this briefing

Following a consultation carried out by the Sustainable Healthcare Education (SHE) Network in response to a request from the General Medical Council, a list of priority learning outcomes for sustainable healthcare has been developed. The aim of this briefing is to demonstrate the necessity for addressing these outcomes within medical ethics education, and to invite the Institute of Medical Ethics to participate in raising the profile of the ethics of sustainability in health and health care.

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# Executive summary

The global community faces major environmental challenges that impact on the health of current and future generations, especially in those areas that are most economically and geographically vulnerable. Major higher education bodies have called on universities to ensure that medical graduates are sustainability-literate, and the ethical underpinnings of sustainable practice will be vital to that literacy.

We argue that addressing sustainability within medical ethics education has a threefold value. Firstly, it will enable health workers to engage with what we propose is a distinct professional responsibility to help mitigate environmental health threats such as climate change. Secondly, it provides a new frame through which to view different bioethical theories, highlighting aspects of these theories that are sometimes neglected. Thirdly, it also serves to demonstrate some limitations of these mainstream approaches in medical ethics and thus challenges some of their implicit premises, with wider ramifications for ethical medical practice. We demonstrate these three points through consideration of some important topics in medical ethics as they relate to sustainability and environmental health (see ‘key topics’ below).

Given this threefold value for incorporation of the ethics of sustainability into medical ethics education, we both highlight areas of the IME Core Curriculum that may serve to facilitate exploration of these issues, and topics that are not adequately addressed by the curriculum. We propose that in future revisions of the core curriculum content, these issues are explored more fully (as, for example, in the UNESCO core bioethics curriculum). In the interim, we invite the IME, medical schools, and others involved in medical ethics education to work with the SHE network on incorporating some of the topics highlighted into curriculums. Initial proposals include development of teaching resources and the organisation of a symposium or workshop for ethics researchers and medical education specialists interested in the intersection of environmental ethics and medical ethics.

## Sustainability in medical ethics: key topics

### Responsibility

Though the question of the normative grounds of health professionals’ responsibilities is often left unaddressed in medical ethics, under both social contractand social connection models of responsibility, health workers have a distinct professional responsibility for the mitigation of environmental health threats. However, engaging with such responsibilities requires looking beyond individual responsibilities to responsibilities of the profession as a collective. Thus the issue of responsibility for environmental sustainability both highlights the under-addressed question of the normative grounds of health workers’ moral responsibilities, and questions the implicit individualism of much of mainstream medical ethics.

### Justice

Traditionally medical ethics’ concern for justice focuses primarily on distributive justice – the fair distribution of finite healthcare resources across a population. Incorporating issues of environmental and climate justice enriches this understanding in several ways. It draws attention to the fair distribution of ecological as well as economic resources, and invites considerations of distributive justice through time (‘intergenerational justice’) as well as across a population at a point in time. By demonstrating how politically marginalised populations disproportionately suffer the harms of local and global environmental bads, it demonstrates the need for procedural justice in policy debates. And by highlighting the importance of equitable access to public goods for population health, it provides a point of entry into developing accounts of public health ethics that move beyond distributive justice to focus on social justice – promotion of a substantive vision of a community supportive of all individuals’ basic human ‘capabilities’ necessary to live a flourishing human life.

### Autonomy

The capabilities emphasised by some approaches to social justice are valuable in large part because they are prerequisites for agents to live a substantively autonomous life; thus attending to issues of environmental health in medical ethics can help to highlight the limitations of readings of respect for autonomy that focus on non-interference in competent decisions without considering the material, psychological, and social underpinnings of autonomous agency. By highlighting how our autonomous capacities are interdependent and our apparently-individual decisions alter the social environments of others in potentially autonomy-affecting ways, it also reaffirms the need for procedural justice in climate policy and public health alike.

### Harm

Common understandings of harm are inadequate for dealing with structural injustice: they presuppose that harms and their causes are individual and spatially- and temporally-local, while the harms of climate change are global, spatially- and temporally-diffuse, arising as the cumulative consequence of many agents’ persistent patterns of activity. Climate change and related issues thus requires medical ethics to take seriously the idea of collective, as well as individual, harms. Furthermore, it highlights the important of balancing risks of harm and decision-making under uncertainty, inviting discussion of public health maxims like the precautionary principle.

### Human rights

Global threats like climate change highlight that questions of human rights in medical ethics go beyond the rights of the individual patient or research participant, but must consider (if they hold the properties of universality and lexical priority as widely supposed) all potentially affected by a given clinical decision. However, they also demonstrate how the formal equality of human rights can serve to exacerbate substantive inequalities, as those with greater political power are able to enforce their negative rights to non-interference in polluting activities at the expense of the positive rights of those affected by such pollution.

# Introduction

The global community faces major environmental challenges that impact on the health of current and future generations, especially in those areas that are most economically and geographically vulnerable. Climate change has been described as “the greatest threat to global health of the 21st century;”1 this creates at least a *prima facie* obligation for health workers, responsible for protecting and promoting the health of patients and public alike, to attempt to mitigate this threat. Medical education is central to a sustainable future for healthcare, and HEFCE, the HEA, the Royal Colleges and the NHS have called on universities to ensure that medical graduates are sustainability-literate,**\*\*\*refs\*\*\*** and knowledge of the ethical underpinnings of norms of medical practice are essential to that practice.2 The Sustainable Healthcare Education (SHE) Network, in response to a request from the General Medical Council, produced three priority learning outcomes for sustainable healthcare education in consultation with medical schools, postgraduate deaneries, and major health organisations across the UK.3 The third outcome requires medical students to be able to “discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment,” and is thus a concern first and foremost for medical ethics education.

This briefing will argue that exploring issues of sustainability and environmental health has a triple significance for teaching and learning of medical ethics. Firstly, if (as argued below) health workers have distinct professional responsibilities to realise more sustainable models of healthcare provision and more broadly on the mitigation of environmental harms, then medical ethics education will need to assist health workers in coming to understand these responsibilities. Secondly, exploring these responsibilities from different bioethical perspectives will assist health workers in developing their understanding of these normative frameworks. Thirdly, and most significantly, however, consideration of the ethics of sustainability, climate change, and human health also serves to demonstrate lacunae within these frameworks, and thus poses a challenge to some implicit premises of mainstream bioethics of significance beyond this context.

# Empirical background

According to the Intergovernmental Panel on Climate Change (IPCC), anthropogenic climate change poses a significant risk to human health and well-being. Most obviously, this arises from the direct effects of changing temperatures and weather patterns, including increased frequency and intensity of natural disasters, droughts, and flooding; but the greater health burden is likely to arise from indirect impacts on natural systems (such as changing infectious disease vector distributions and changing patterns of many food- and water-borne diseases) and on human social systems (such as social disruption, food insecurity, conflict, and mental stress).4 The World Health Organisation (WHO) estimates that climate change will cause an additional 250,000 deaths per year from 2030-50 due to increased malnutrition, malaria, diarrhea, and heat stress;5 estimates factoring in further indirect impacts suggest that the total mortality burden may run as high as 700,000 deaths per year by 2030.6 For more information on the health effects of climate change, see the references cited.1,4,7–12

In addition to the health burden of climate change, there are many potential health co-benefits to be realized from action taken to mitigate climate change. Moving away from fossil fuel-powered energy generation and transport will improve health through reduced air pollution and increased physical activity, while low-carbon diets with reduced red and processed meat consumption reduces risk of colorectal cancer and other non-communicable diseases.13,14

In addition to the effect of climate change on health, healthcare has a significant impact on climate change, particularly in the resource-intensive models of healthcare delivery found in more-industrialised nations. Latest estimates of the 2012 carbon footprint of the health care sector in England (including the NHS, public health, and social care) comes to 32MtCO2e – 40% of public sector emissions – out of a total UK footprint that year of 571.6MtCO2e (NB this includes Scotland, Wales and Northern Ireland, whose contributions are not included in the health care sector footprint).15 Previous estimates of the US health sector’s footprint have claimed that it accounts for 8% of the nation’s total GHG emissions.16 These figures have prompted a growing movement towards improving health systems to achieve more ‘sustainable’ healthcare, maintaining or improving health outcomes while reducing resource-intensive practice.17,18 Some less-industrialised nations, however, achieve excellent healthcare outcomes with less resource-intensive systems;19 the Cuban health care system, for example, is significantly less resource-intensive (spending just $430 per capita on healthcare – contrast this to the UK and US figures of $3,322 [still one of the most efficient in OECD nations] and $8,608 respectively20), but still achieves comparable or even better outcomes on many metrics of population health.21,22

There is thus ample evidence of both the major significance climate change will play in future health workers’ practice, and the effect current health systems are having on climate change. While this does not itself constitute an ethical argument for health workers’ responsibilities on the issue, it is a necessary precursor for what will follow.

# Responsibility

The relevance of the ethics of sustainability to medical ethics education will in large part depend upon the extent to which health workers are deemed to be responsible for the mitigating the health impacts of climate change, and the ecological impacts of health systems. More precisely, it will depend upon their bearing *professional* responsibilities on such matters – that is, obligations in their role as health workers. Determining this will require examination of what normative considerations are supposed to underpin such professional responsibilities. This is complicated by the fact that the dominant ‘common-sense’ pluralist approach in medical ethics – typified by Principlism23,24 – tends to eschew systematic frameworks in favour of direct application of intuitively reasonable mid-level principles. We propose, however, that according to the ‘social contract’ model of responsibility widely endorsed in the professionalism literature, health workers do bear a responsibility at least for sustainable practice; but the manner in which these responsibilities distribute poses a distinct challenge to mainstream bioethics. Contrary to a dominant presumption of methodological individualism, where responsibilities are held foremost by and to individuals,25–27 responsibilities for sustainability are best understood as held by health workers *as a collective*. The content of such responsibilities can be further elucidated by considering a better model for structural injustices such as climate change, Iris Marion Young’s ‘social connection’ responsibility.28,29

## Social contract

The idea that a social contract underpins the responsibilities of the medical profession is common throughout the professionalism literature.30,31,32 Professional responsibilities are seen to arise from a contract between society and the profession, in which the latter agrees to provide a vital social good – promotion and protect of health of patients and public – and in return, society offers it the right to self-regulation, and a degree of monopoly over the political, economic and labour activity needed to achieve such provision. As long as the social contract model has been employed, it has been understood that the responsibilities it entails stretch beyond the bedside.33,34 Given the evidence highlighted above of the impact of the environment on health, the social contract model would appear to entail that health workers bear responsibilities for protecting that environment.

However, this is complicated by the fact that health workers do not directly participate in the social contract: the parties to the social contract are society, and the medical *profession*. Thus any responsibilities imposed by the contract fall, in the first instance, on the profession. This does not, necessarily entail that they are also the responsibilities of individual *professionals*, only that the profession bears some kind of group responsibility. There are different forms such responsibilities can take. *Shared responsibilities* are such that each group member bears individual responsibility for a certain proportion of the outcome. But there are also *collective responsibilities* – ones held only by the group as a coordinated collective. With shared responsibilities, each member has responsibility for a share, and only for their share – and if all of the group members each act independently to discharge their personal responsibilities, then the group’s shared responsibility will overall be discharged. With collective responsibilities, however, the members of the group need to act in a coordinated, collective fashion to discharge the group responsibility – individual actions won’t be enough.

There is reason to think that responsibilities to mitigate harmful environmental change must fall in the latter category. This is because it is not the case that, if each health worker acted independently to reduce their carbon footprint, dangerous climate change would be averted. What any one of us can do to mitigate climate change depends on a huge range of factors outside our control – our infrastructure and built environment, national and international energy policy, energy companies’ investments in fossil fuel or renewable energy generation, and so on. If we adopt the principle that we can only have responsibilities to do what we are in fact able to do (the ‘ought implies can’ principle), then this entails that such collective action problems cannot simply be devolved to individual responsibilities.

Iris Marion Young calls these sorts of moral problems ‘structural injustices’.29 They arise less from the distinct harmful acts of individuals or groups of individuals, than from the ways in which social structures constrain individuals from pursuing certain courses of action, and enable them to follow others, with side-effects that may cumulatively produce devastating impacts. Given the scale of the social processes operating to produce these structural injustices, and the diverse range of agents involved, Young argues that responsibilities for tackling structural injustice cannot be individual, but are inherently political; she writes that “structural processes can be altered only if many actors in diverse social positions work together to intervene in these processes to produce different outcomes.”28(p123) In other words, they produce collective responsibilities.

## Social connection

Young further develops her account of structural injustice into a model of responsibility adequate for dealing with them. Her ‘social connection’ model grounds responsibility in a generalisation of two common-sense principles for its distribution; ‘liability’ (those who cause an injustice are responsible for its resolution) and ‘ability’ (those best able to resolve an injustice are responsible to do so). It adapts these principles to contexts like climate change in which causes and solutions alike are temporally- and spatially-diffuse, multifactorial, and collectively produced. It acknowledges that all agents acting within social structures are causally implicated – and thus in some sense liable – for the production of the harms arising from those structures, and have a certain degree of capacity – and are thus in some sense able – to act within and upon those structures to mitigate the harms that arise from them. However, it also notes that agents occupy very *different* positions within such structures, permitting meaningful distinctions to be made regarding the degree and content of responsibilities – ‘common but differentiated’ responsibilities, to borrow a widely-endorsed principle of the international climate change policy process.

Young highlights four dimensions of variation regarding individuals’ social positions suited to differentiating responsibilities within a social structure, capturing the intuitions behind the liability and ability models – that those who are more favoured by the processes that produce structural injustice (a dimension she calls *privilege*), and those who are better positioned to achieve meaningful change within those processes (the dimension of *power*), have special responsibilities for dealing with such harms. She also points to the motivational benefit of *interest* – professional, or personal/prudential – in a particular injustice as contributing to agents’ being better suited to act on it. Lastly, given the necessity for collective, rather than individual, action, she draws attention to a consequent variation of degree of responsibility with a group’s *collective ability* – their capacity for acting in concert on collective responsibilities. We have already seen above that engaging with responsibility for health-affecting structural injustice requires a move from looking at individual health workers’ responsibilities to determination of the collective responsibilities of health workers. Young’s other three parameters suggest that health workers do bear collective responsibilities relating to sustainability.

While there is a wide degree of variation of social position amongst health workers, and one’s occupation, while important, does not begin to define one’s social position entirely, there are common aspects of health workers’ social that enable ascription of collective responsibility for climate change mitigation. There are at least three respects in which the health sector bears distinct *power* for mitigation: in mitigation activities that fall under the remit of the health sector (*e.g.* improving access to and quality of family planning services that focus on women’s empowerment and improved reproductive autonomy – these can have major maternal and child health benefits,35 as well as contributing significantly to climate change mitigation36,37[[1]](#footnote-1)); in possibilities for direct mitigation by the health sector (see ‘empirical background’ above), and in the potential social influence of health workers’ voices in key policy debates related to climate change mitigation (health workers are important contributors to relevant areas of public policy including food and agriculture, transport, and energy. They are frequently considered trusted voices,39 particularly on issues of environmental health,40 and many authors also highlight the motivational value of the health ‘frame’ in calling for action on social issues.41,42)

Privilege is perhaps the dimension along which different health workers’ social positions will be most widely distributed. However, health workers in more industrialised societies at least benefit from having large supplies of readily-available energy, the infrastructure to support its supply, a fossil fuel-intensive transport infrastructure, and the easy supply of cheaply-made medical supplies from less wealthy societies, without which the resource-intensive model of medicine that has developed in such societies would not be feasible.

Mitigation is strongly in the professional interests of health workers, as the health costs of unmitigated climate change are potentially so vast (see ‘empirical background’ above). Young also observes that responsibility is a superadditive function of power and interest, since power is often associated with vested interests in maintaining the structures responsible for harm (power is positively correlated with privilege), thus those who enjoy significant power, but are willing to act against the vested interests and work for reform of damaging social structures, have special responsibility for doing so – hence the combination of health workers’ power and interest in mitigating climate change gives a particular responsibility to act.

Consideration of the ethics of sustainability thus demonstrates that health workers do bear professional responsibilities on health-affecting injustices such as climate change, but also that interrogating these responsibilities highlights some lacunae in dominant approaches to bioethics that are salient for other issues too.

# Justice

Young’s social connection model of responsibility further raises the issue of *justice*. The kind of justice she discusses, however, appears distinct from the most common understanding of that term in bioethics. The predominant focus here is on questions of *distributive* justice – the fair allocation of available resources. Furthermore, medical ethics education tends to elide justice in health with justice in healthcare. Engaging with the ethics of sustainability both permits an exploration of the nature of responsibilities for distributive justice in healthcare, but also highlights the need to engage with richer understandings of justice, such as the conceptions of ‘social justice’ increasingly considered central to public health ethics,43–46 complemented by emerging discourses of environmental and climate justice.47

Consideration of sustainability adds an important dimension to debates on distributive justice in healthcare, insofar as it draws attention to the ecological as well as economic resources consumed by healthcare interventions, and the just distribution of an available ecological footprint.48 Furthermore, it is able to enhance such debates by introducing diachronic considerations of distributive justice (or ‘intergenerational justice’). The Brundtland Commission’s definition of a sustainable process is one that “meets the needs of the present without compromising the ability of future generations to meet their own needs.”49 Debates concerning just resource distribution in bioethics tend to focus on those currently living who may have a legitimate claim to available resources; but the impacts of living beyond the planet’s carrying capacity today will be most strongly felt by future generations. Thus introducing the ethics of sustainability to bioethics education can enhance it by aiding consideration of intergenerational justice – what we owe to future generations.50,51

 The ethics of environmental and climate justice, however, further serve to highlight how distributive justice alone offers too thin a conception of all that the term can convey. A commonly-accepted parsing of justice is of justice as ‘fairness’.52 Distributive justice attends to fairness in the distribution of finite resources. But environmental and climate justice, noting how local and global environmental bads (from highly-polluting industrial facilities to the health consequences of extreme weather events) are disproportionately inflicted upon politically marginalised communities, further bring attention to *procedural justice* – fairness in whose voice is heard.47 Given medicine’s chequered history of listening to such marginalised perspectives, and the need to implement population-level health promotion policies while still respecting individuals’ and communities’ autonomy,44,53 procedural justice is an important issue for bioethics more broadly. Environmental and climate justice have also moved beyond such procedural considerations to present substantive representations of just communities, in the form of ‘thick’ concepts of *social justice*47 – a commitment to the principle that all are “entitled equally to key ends” necessary for a flourishing life.54 Rather than the distribution of finite resources that concerns distributive justice, social justice rather looks primarily at inequalities in access to and opportunities from public goods.55 For environmental and climate justice advocates, these goods are the environmental determinants of health;47 but social justice is increasingly viewed as an organising principle of public health ethics too, with a focus more broadly on patterns of entrenched disadvantage preventing equal access to the material, psychological, and social underpinnings of good health.43,54 Both environmental and public health ethicists widely utilise the capabilities approach to understand the content of social justice, regarding fairness in distribution of these social goods as entailing universal access to a sufficient level of those goods to allow all agents to exercise certain key capacities or ‘functionings’ that are viewed as essential to the good human life.43,56,57

Thus consideration of sustainability in medical ethics teaching enhances understanding of distributive justice in health and healthcare; challenges understandings of justice in bioethics that focus overwhelmingly on distribution; and so provides an avenue for exploration of novel developments in public health ethics and the distinctions between it and mainstream medical ethics.

# Autonomy

The features that proved salient to an enhanced understanding of justice are also bear significant ramifications for the interpretation of respect for autonomy. While respect for autonomy in medical ethics has historically focussed on removing barriers to individuals’ free choice, social justice instead focuses on promoting the capabilities necessary for individuals to have the opportunity for leading a flourishing life. As such interventions may involve putting limitations upon or otherwise influencing patients’ choices, this has led many public health ethicists to consider the totemic status of respect for autonomy in medical ethics to be antithetical to the aims of public health.44,58 Others, however, note that the value of many of the proposed capabilities protected by social justice is precisely in that they are required for the exercise of substantive autonomy. Relational accounts of autonomy, for example, highlight that autonomy requires not only unconstrained choice, but more importantly the material, psychological and social resources necessary to make those choses *authentic*.59

Conventional approaches to respect for autonomy frame it chiefly as a matter of non-interference in the self-regarding decisions of others, provided that they meet certain basic standards of decision-making competence – for instance, as embodied in the Doctrine of Informed Consent,60 or where respect is interpreted as removal of barriers to patient choice61 or the (negative) freedom to decide.62 Its totemic status in the discipline can serve to produce an ‘ideology of the moral life’63,64 – since this interpretation of respect for autonomy focuses on the temporally-isolated decisions facing socially-isolated individuals, and problems in medical ethics are so frequently framed as to make respecting autonomy central, it can come to appear that what counts ethically is only the individual and temporally-isolated.65,66 The consequent marginalisation of moral concerns with diachronic and social dimensions are frequently highlighted as troubling features of much of mainstream bioethics.26,27,67 This poses significant difficulties for medical ethics engaging with climate change – which, as already described, is an irreducibly global and temporally-diffuse problem – but also for many other problems facing health systems.

Alternative understandings of autonomy – and of respecting it – may, however, be of more use in these situations. Relational approaches look at autonomy by highlighting how our cultural and economic situations, social relationships and interpersonal ties contribute to both our values and our ability to act on those values. This influence can be material,68 cognitive,69,70,71 and affective,72–74 and can both support and undermine agents’ capacities to live in accordance with values that are legitimately ‘their own’ – a necessary precondition of autonomy (understood, as broadly characterised and its etymology indicates, as ‘self-governance’). Interpreting autonomy in this way highlights that many of the ‘capabilities’ identified as the preconditions of social justice are valued in large part because they are the preconditions of being able “to live one’s own life and nobody else’s”57 – that is, to be autonomous. These richer understandings of autonomy help to make sense of some public health ethicists’ contention that “public health would be better served by seeking to expand autonomy through promoting justice.”44 They furthermore highlight that climate change, as a threat to its material, psychological and social preconditions of autonomy, is a threat to autonomy.65 Moreover, in highlighting how our autonomous capacities are interdependent and our apparently-individual decisions alter the social environments of others in potentially autonomy-affecting ways, they move us toward alternative understandings of respect that acknowledge that our lives to do not occur in a vacuum and affect, and are affected by, those around us.45,70,73 These reaffirm the need for procedural justice in climate policy and public health alike, as collective actions intended to shape communities in light of a substantive, shared picture of communal flourishing.53,66

# Harm, non-maleficence, and precaution

*Primum non nocere* – ‘first, do no harm’ – is perhaps the most widely recognised statement in medical ethics. In contemporary discourse it is brought to bear in two primary forms: in medical ethics, it is enshrined within the principle of non-maleficence, an impartial obligation to refrain from doing harm to anyone;23 while public health practice and ethics makes frequent use of the ‘precautionary principle’ – “when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”75 Problems like climate change, however, require us to reconsider fundamentally how we understand ‘harm’, and consequent moral responsibilities.

## Non-maleficence

Climate change is harmful (see ‘empirical background’). But it is less clear *who* perpetrates this harm. We describe climate change above as a structural injustice, produced by many agents acting according to social structures that constrain certain courses of action and enable others, in ways broadly thought individually permissible. But, as several climate ethicists have argued, our understanding of harms are inadequate for dealing with structural injustice: they “presuppose that harms and their causes are individual, that they can readily be identified, and that they are local in space and time,”76, while the harms of climate change are global, spatially- and temporally-diffuse, embodying a “fragmentation of agency” as the cumulative consequence of many agents’ persistent patterns of activity.77

Are greenhouse gas emissions a violation of non-maleficence? There are several problems with this proposal. Firstly, almost all actions (with the exception perhaps of planting trees) are emissions-positive; understanding non-maleficence in this fashion would prohibit doing more or less anything, making it useless in practice. Secondly, it is questionable whether even profligate emissions by individuals do any harm at all, given that they make such a negligible difference to overall global emissions.78 Some attempt to respond to this objection by integrating an individual’s emissions over time, arguing that the cumulative impacts of individuals’ lifestyle choices make a significant difference to premature mortality.79,80 However, these attempts make two crucial assumptions: firstly, that individuals are wholly morally responsible for emissions arising from their choices – but as noted already, a key feature of structural injustice is that social processes shape what choices are available to us (my switching on a light would be significantly less emissions-intensive in a society with decent renewable energy infrastructure, and I might choose to cycle to work if cities were more hospitable to active transport ); and secondly, that the harms of climate change increase linearly as a function of emissions (so each individual’s harm is just the product of the total harm by the fraction of total emissions they personally produced). But (if we accept a counterfactual definition of ‘harm’ like Derek Parfit’s, where ‘harm’ of an act is just the marginal change in total bad outcomes in a world where the act is performed, compared to one in which it is not81) then this is inappropriate, because the harms of climate change do not scale linearly – global climate systems are subject to several ‘tipping points’ (ice sheet collapse, permafrost methane release, ocean circulation disruption, and so on), that would lead to abrupt discontinuities in harms at certain levels of emissions.4,82

A more promising approach is to integrate harms over groups. Although individuals’ actions are constrained by the social structures they inhabit, those individuals themselves collectively produce and reproduce those structures; and (depending on the size of the collective) altering the structures of such groups could create significant enough emissions reductions to alter the harms of climate change significantly, hence this approach avoids both problems faced by the integrating-across-time approach. However, this requires us to consider what kinds of groups are *fit to be held responsible* – what kinds of groups are able to act collectively to reduce emissions. It was suggested above that health systems form one such kind of collective. Thus the ethics of sustainability emphasises an important development in medical ethics – that, to engage properly with the most serious harms to human health, we must consider responsibilities of *collective,* as well as individual, non-maleficence.

## The precautionary principle

Emerging from the discourse of environmental epidemiology, the precautionary principle has gained widespread popularity amongst public health practitioners as an ethical principle governing regulatory action for a range of potential public health threats. This is despite heavy criticism in the ethics, economics and policy literature.83,84 The principle offers an important example of environmental ethics permeating the broader bioethics discourse; furthermore, it highlights the growing importance of the ethics of decision-making in contexts of uncertainty and ignorance, beyond consideration of known risks alone.

# Human rights

From at least as early as the 1972 Stockholm Declaration, the international community has recognised that climate change and related environmental health threats may produce rights violations.85 These violations relate not just to more contentious positive rights, but also negative rights such as the right to life.86 Since human rights are supposed to apply universally and to carry lexical priority over other competing moral values – and furthermore negative rights are frequently held to impose perfect duties against their violation – this creates a *prima facie* strong case for an overriding duty on all parties – including health workers – to mitigate such threats. This issue is complicated, however, by the fragmentation of agency characteristic of structural injustices like climate change, which, as discussed above, creates severe problems for holding individual agents to moral standards such as human rights (since, while collectively we may severely violate several human rights by exacerbating environmental health threats, it is not obviously the case that you or I are individually guilty of such offences).

Climate change further serves to highlight some limitations of rights discourse. The frequent rhetorical invocation of what amounts to a ‘right to pollute’ – whether in anti-paternalist arguments as with George Bush’s proclamation that “the American lifestyle is not up for negotiation” or in international disputes over emissions regulations – is a potent example of the criticism that rights are “trump cards to get more resources – and it is rarely the poor who play [them] most effectively.”87 Public health ethicists have argued that the formal equality between individuals emphasised by human rights ignores substantive inequalities that affect the degree to which different communities are able to exercise them.88 Considering environmental health as a human rights issue thus returns us again to the need to consider procedural justice in bioethics education.

# Sustainability in the IME core content

The IME’s core content of learning for medical ethics curriculums offers opportunities to engage with some of the concerns highlighted above, but is relatively silent concerning others. Most obviously, questions of distributive justice are covered comparatively thoroughly under the topics grouped under ‘justice and public health’; there is scope for considering ecological as well as economic resources within these topics. However, the core content does not expand the subject of justice much beyond these questions, and could be enhanced by engaging with issues of procedural, social, and intergenerational justice, both as they affect sustainability and more generally within health systems.

The core content also addresses the relationship between human rights and professional practice, but applies these only to patients. As reviewed above, extending their application globally (as is required if rights bear the properties of universality and lexical priority with which they are commonly invoked) both enriches and challenges the use of rights discourse in bioethics and is a necessary component of understanding their relevance to health workers’ future practice.

The SHE Network Priority Learning Outcomes include the following objectives under the overarching outcome, “Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment”:

* “Explain how the health impacts of environmental change are distributed unequally within and between populations and the disparity between those most responsible and those most affected by change.
* “Recognise and articulate personal values concerning environmental sustainability, given the relationship between the environment and the health of current and future generations.
* “Discuss ethical tensions between allocating resources to individual patients and protecting the environment upon which the health of the wider community depends.
* “Demonstrate awareness of organisational sustainability policies and the legal frameworks for reducing carbon emissions.”

These provide one possible starting point for engaging further with the issues highlighted in medical ethics education. It is also noteworthy that many of the issues highlighted above that are neither overtly included in the IME content nor fit in easily under any of the other topics – including social, procedural and intergenerational justice, protection of the environment, and solidaristic collective action – can be found in the UNESCO core bioethics curriculum,89 which was used as a starting point for construction of the core content.2 It is our contention that these considerations, deemed low priority for inclusion in medical ethics curriculums, will be vital for health workers of the 21st century, “competent to participate in patient and population-centred health systems as members of locally responsive and globally connected teams.”90

# Recommendations

We argue that health workers have important responsibilities both to make their practice more sustainable and to take broader collective and political action on the social and ecological determinants of health, including the transition to a more sustainable society. Medical ethics education will play a crucial role in training tomorrow’s doctors to engage with such responsibilities. Furthermore, consideration of the ethics of sustainability and climate change has an independently valuable role in medical ethics curriculums, both in elucidating sometimes-neglected features of mainstream bioethical theories, and in posing a significant challenge to the normative adequacy of those theories.

Considering this triple significance of the ethics of sustainability in medical ethics education, we would value the opportunity to work with the IME, medical schools, and others involved in medical ethics education to work on these issues. We propose that in future revisions of the IME Core Content, issues of the social accountability of health workers broadly, and the ethics of sustainability and environmental health in particular, are given wider consideration. In the interim, we would be interested in developing means of enhancing the understanding of and engagement with these questions within medical ethics curriculums. Initial proposals would include organisation of a workshop or symposium for ethics and medical education researchers and practitioners on incorporating issues of environmental health and sustainability into medical ethics, with a view to the establishing of an ongoing working group. We could also develop teaching resources to facilitate exploration of these ideas within medical ethics education.

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1. It is important to stress that the climate crisis is not one of overpopulation – as a recent *Lancet* review puts it, “consumers, rather than people, cause climate change”37 – but it is nonetheless the case that population growth (not just in terms of numbers, but in the fashion in which it grows, *e.g.* with increasing urbanisation and changing patterns of food and water consumption) significantly affects human impacts on the environment.38 [↑](#footnote-ref-1)