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HEALTH, JUSTICE, AND THE ENVIRONMENT

David B. Resnik and

JD, PhD, Bioethicist, National Institute of Environmental Health Sciences, National Institutes of Health, Box 12233, Mail Drop NH 06, Research Triangle Park, NC 27709, USA.

resnikd@niehs.nih.gov

Gerard Roman

BS, MHS, Office of Equal Opportunity & Diversity Management, National Institute of Environmental Health Sciences, National Institutes of Health

Abstract

In this article, we argue that the scope of bioethical debate concerning justice in health should expand beyond the topic of access to health care and cover such issues as occupational hazards, safe housing, air pollution, water quality, food and drug safety, pest control, public health, childhood nutrition, disaster preparedness, literacy, and many other environmental factors that can cause differences in health. Since society does not have sufficient resources to address all of these environmental factors at one time, it is important to set priorities for bioethical theorizing and policy formation. Two considerations should be used to set these priorities: (1) the impact of the environmental factor on health inequality, and (2) the practicality of addressing the factor.

Keywords

health inequalities; health disparities; justice; environment; access to care; utilitarianism; contractarianism; international justice

INTRODUCTION

Consider the following decision scenario:

A county is deciding where to place a new waste disposal site. It has narrowed the choices down to two places: Site A, which is near an upper-middle class housing development, and Site B, which is near a lower-class mobile home park. 200 people live in the housing development, with an average household income of \$90,000 per year. About 500 people live in the mobile home park, with an average household income of \$20,000 per year. The racial composition of the housing development is 85% Caucasian, 8% Asian, and 5% Black, and 2% Latino. The trailer park is 45% Caucasian, 25% Black, 22% Latino, and 8% Asian. People from the housing development have begun a well-organized campaign to oppose placing the waste disposal at Site A, while people from the trailer park have raised very little opposition to placing it at Site B. Even though the county will take measures to safeguard the health of people living near the waste disposal, it may still have an adverse impact on their health.

This scenario has important implications for individual and public health and distributive justice, but most theories of justice in bioethics offer very little guidance concerning situations like this one.¹ Theories of justice in bioethics tend to focus on questions concerning the equitable distribution of health care, and pay little attention to questions of how the environment affects the distribution of health.²

In this article, we will explore these larger questions concerning the relationship between the environment and inequalities in human health. We will argue that theories of justice in bioethics need to pay greater attention to how the environment affects the distribution on human health, because the environment plays an important role in human health and disease.³ To develop our argument, we will first review some of the literature on the prevalence and causes of health inequalities. We will then consider how theories of justice in bioethics deal with inequalities, and then we will explain why the scope of these theories should be expanded to include a greater concern for the relationship between health and the environment. After arguing for expanding the scope of bioethical theory, we discuss the need to set priorities when responding to environmental factors that impact human health.

WHAT ARE HEALTH INEQUALITIES?

There is a large body of literature demonstrating that there are profound inequalities in human health between and among nations. Before reviewing some of these differences, it is important to distinguish between ‘health inequalities’ and ‘health inequities’. Many of the authors writing about health inequalities (or health disparities) fail to distinguish between inequality and inequity. ‘Inequality’ is a descriptive term that refers to differences among people or groups of people. ‘Inequity’ is a normative term that refers to differences among people that are unfair or unjust. It is important to distinguish between ‘health inequality’ and ‘health inequity’ because not all inequalities in health are unjust or unfair. Some inequalities are due to accidents, poor choices, and other processes that most people would not consider to be unfair. Scientific disciplines, such as epidemiology, public health, environmental health, international health, and health economics can provide society with valuable information about health inequalities. Normative disciplines, such as bioethics, health policy, health law, and political philosophy, can help society to decide which of these inequalities are unfair.⁴

Health inequalities can occur within nations or among nations. In the United States (US), there are many different types of health inequalities. African Americans in the US have a higher incidence of cancer than whites, Asians, Latinos, and Native Americans. African Americans also have a higher cancer mortality rate than all other racial or ethnic groups. African American females are almost twice more likely to develop colon cancer than American Indians, and they are two times more likely to die from breast cancer than Latino women. The incidence of prostate cancer among African American males in the US is almost three times higher than the incidence of prostate cancer among Asians, and African American males are three times more likely to die from prostate cancer than Latino males.⁵ Economically disadvantaged people in the US have a shorter life expectancy than affluent people, and have higher rate of heart disease, hypertension, diabetes, asthma, birth defects, infant mortality, and cancer.⁶ People living in rural areas in the US have a higher rate of chronic illness, occupational-related injury or disability, injury-related death, heart disease, cancer, and diabetes than people living in urban areas.⁷

There are international differences in health. In 2002, life expectancy in Botswana was 40.4 years; in Afghanistan, 42.6 years; in Haiti, 50.1 years; in India, 61.0 years; in Denmark, 77.2 years; and in Canada, 79.8 years. Infant mortality (deaths under age 5 per 1000 births) in Afghanistan was 257; in Iraq, 115; in Botswana, 103; in Ecuador, 32; in Canada, 5.5; and in

Denmark, 5.5.⁸ In sub-Saharan Africa in 2004, 25.4 million people were infected with HIV/AIDS (7.4% of the adult population), as compared to 1.4 million people in Eastern Europe (0.8% of the adult population), 1.7 million people in Latin American (0.6% of the adult population), 8.2 million people in Asia (0.4% of the adult population) and 1.6 million people in North America and Western Europe (0.4% of the adult population).⁹ Every year, about 90% of the world's 300 million malaria cases occur in Africa, mostly in young children. Malaria, which kills one million people a year, is the leading cause of infant mortality in Africa.¹⁰ Africa also has the highest mortality rate from tuberculosis (TB) of any region in the world. In 2002, 83 people per 100,000 died from TB in Africa, as compared to 39 in Southeast Asia, 28 in the Eastern Mediterranean, 22 in the Western Pacific, and 8 in Europe.¹¹

There are many different possible explanations for intra-national and international differences in health.¹² These explanations appeal to one of three basic, causal factors: (1) genetics; (2) individual choices; and (3) the environment. Research in the last two decades has uncovered many different genetic factors that influence health. About 5000 diseases are strongly determined by genetic factors. However, for the vast majority of human diseases, genes do not casually determine disease but merely increase the risk of developing disease. Genes can increase one's susceptibility to developing lung, colon, breast, ovarian cancer, Type II (adult) diabetes, high blood pressure, obesity, heart disease, and Alzheimer's disease.¹³ Many of the differences in health among people result from different decisions people have made concerning diet, exercise, smoking, sex, recreational activities, and employment.¹⁴ Finally, environmental factors also play a very important role in producing health differences.¹⁵

The environment includes many different types of causal factors, ranging from geography and pollution to culture or religion. Some of these factors, such as diet, religion, and occupation, interact with personal choices: individuals choose whether to expose themselves to these environmental factors. Other factors, such as racism and war, are largely beyond the control of any single individual. Some factors, such as pollution and crime, can be controlled through laws and regulations. Finally, some factors, such as natural disasters and parasites, are beyond human control, even though human beings can choose how to respond to them. To help clarify the role of the environment in human health, it will be useful to distinguish between five types of environmental causal factors that have an impact on health/disease: physical causes, social causes, cultural causes, economic causes, and legal causes (Table 1).

Although we think it is useful and informative to distinguish between different types of environmental factors related to health inequalities, we do not claim that these categories are mutually exclusive. Many different environmental factors interact with each other in complex ways to cause differences in health. For example, access to health care is a function of many different environmental factors such as literacy, education, the structure of health care institutions, racism, religion; the costs of health care, income, the availability of insurance, tax laws, and health insurance laws. Race interacts with many other environmental factors, such as income, social status, housing, occupational exposures, and education.¹⁶ Diet also interacts with many different factors, including culture, race, geography, ethnicity and income.

JUSTICE AND HEALTH INEQUALITIES

Having described some of the intra-national and international differences in the distribution of health, as well as some potential causes, we can now consider whether these differences are unjust (unfair or inequitable). This query actually consists of two very different questions: (1) 'Are intra-national differences in health unjust?', and (2) 'Are international

differences in health unjust?' To answer these questions, we must first consider how theories of national and international justice apply to the distribution of health.

Theories of justice have several distinct concerns: (1) the distribution of benefits and burdens in society (or distributive justice), (2) the enforcement of criminal laws (retributive justice), and principles for protecting rights, settling disputes, and deciding political questions (procedural justice). This paper will focus on questions related to distributive justice. Distribution problems arise in many different social venues, ranging from education and research, taxation and police protection, food and transportation. In health, distributive justice problems occur in such situations as triage in the emergency department, organ transplantation, access to the health care system, and exposure to environmental hazards. Since there is not sufficient space in this article to review all of the major theories of distributive justice and their implications for human health, we will focus on two of the most influential approaches, Norman Daniels' contractarianism and utilitarianism.¹⁷

NATIONAL JUSTICE AND HEALTH INEQUALITIES

In his now classic book, *Just Health Care*, Daniels applies the late John Rawls' theory of justice to health care.¹⁸ Although Daniels has modified and clarified his views since the publication of *Just Health Care*, his basic approach remains the same.¹⁹ To understand Daniels' views, it will be necessary to first say a few words about Rawls' theory of justice. According to Rawls, a just society is one in which social institutions conform to principles of justice. Principles of justice are based on a hypothetical contract that rational individuals would form to obtain the benefits of social cooperation. The contractors want to promote their own interests but they do not know who they will be in the society.²⁰ According to Rawls, the contractors would choose two principles of justice: (1) fundamental rights and liberties should be distributed equally (the equality principle), and (2) social and economic goods may be distributed unequally, provided that the unequal distribution benefits all members of society, and there is fair equality of opportunity in society (the difference principle). Rawls also held that these principles are lexically ordered: the equality principle takes precedence over the difference principle, and, within the difference principle, equality of opportunity takes precedence over social and economic inequalities that benefit all.²¹ According to Rawls, society may redistribute resources to compensate its least advantaged members for undeserved disadvantages, such as social or economic liabilities resulting from genetics and heritage.²²

In extending Rawls' theory to human health, Daniels treats the health care system as a social institution, which should conform to the equality principle and the difference principle. Daniels notices, however, that Rawls' theory does not apply neatly to the health care system, because it is an ideal theory in which 'no one is sick!'²³ To bridge the gap between this idealization and the health care system, Daniels develops a theory of health and disease. Diseases, according to Daniels, are impairments of normal functioning among members of the human species that constrict the range of opportunities. An opportunity range is a collection of life plans that a person can reasonably be expected to develop, given his or her talents and skills. A person with a disease has a diminished ability to realize different life plans. Disease can limit opportunities by causing disabilities (morbidity) or death (mortality).

If a health care system should promote equality of opportunity, then it must address impairments of normal functioning (i.e. diseases) that interfere with opportunity. Society should take steps to ensure that all individuals in society have their health care needs met. A health care need, according to Daniels, is what a person requires to bring him or her to a normal level of functioning. Health care needs can be ranked according to the degree of

impairment of normal functioning that they correct. For example, insulin for a Type I diabetic is a greater health care need than antacid for a person with heartburn, because without insulin the diabetic may become disabled or die, while the person with heartburn will suffer, but probably will not die. According to Daniels, 'In general, it will be more important to prevent, cure, or compensate for those disease conditions which involve a greater curtailment of an individual's share of the normal opportunity range'.²⁴

How does Daniels' view apply to health inequalities? Although Daniels believes that people should have their health care needs met, he does not hold that everyone must have the same degree of health. Daniels, like Rawls, believes in equality of opportunity, not equality of outcomes. Ideally, a health care system should meet all health care needs in society. In the real world, however, this often does not happen because of limited resources, lack of effective treatments, choices by individuals to place their health at risk, the natural lottery (genetics), and just bad luck (such as accidents). Thus, on Daniels' view, not all inequalities in health are unjust. Only those inequalities that result from unjust social institutions are unjust. A main concern for a theory of justice in health care should be guiding the development of just health care institutions.²⁵

Turning to utilitarianism, with the notable exception of Peter Singer, very few bioethicists subscribe to this approach to moral theorizing.²⁶ However, utilitarianism continues to have considerable influence on many different health policies. For example, the concept of triage used in battlefield or emergency situations, has been defended on utilitarian grounds.²⁷ Utilitarian philosophy holds that we should distribute benefits and burdens to promote the greatest good for the greatest number of people. Classical utilitarians, such as John Stuart Mill, equated the good (or utility) with pleasure or happiness, while modern utilitarians, such as R.M. Hare, equate the good with the satisfaction of preferences.²⁸ There are a variety of well-known objections to utilitarianism that we will not explore here.²⁹ Sophisticated versions of utilitarianism, such as Hare's, attempt to deal with these objections by construing morality as a system of rules and procedures that maximize utility.³⁰

Two influential economic approaches to health policy embody utilitarian concepts and principles. Both of these approaches use economic methods to measure the health of populations, or aggregate health. The World Health Organization (WHO) and the National Institutes of Health (NIH) both use the concept of burden of disease to guide policy. The WHO is committed to reducing the overall burden of disease through biomedical research, resource allocation, and economic development. It defines the burden of disease as 'the overall impact of diseases and injuries at the individual level, at the societal level, or to the economic costs of diseases.'³¹ The WHO uses several different variables to measure the global burden of disease, such as health adjusted life expectancy (HALE) and disability adjusted life year (DALY). The NIH also uses burden of disease to set priorities for biomedical research funding.³² The concept of quality adjusted life years (QUALY) also plays an important role in setting research priorities and evaluating the cost-effectiveness of medical treatment and prevention, and public health interventions.³³ QUALYs measure the quantity of life, adjusted by quality of life considerations. For example, a year of perfect health equals 1.0, death equals 0, and a year of less than perfect health is less than 1.0.³⁴

How do utilitarians respond to health inequalities? Although utilitarians are not concerned with reducing health inequalities per se, they believe that inequalities that undermine overall utility should be addressed.³⁵ It is usually the case that reducing health inequalities will have a positive effect on utility, because illnesses have a negative impact on worker productivity, economic development, and quality of life. However, since the connection between health inequality and utility is a function of social, economic, and medical facts, the moral acceptability of health inequalities varies according to these circumstances. In general,

utilitarians tend to favor cost-effective strategies, such as immunizations, lifestyle changes, and public health measures, and they tend to spurn cost-ineffective strategies, such as high-tech medicine for extremely premature newborns or terminally-ill adults.³⁶ Utilitarians have no qualms about rationing health care in order to make effective use of social resources.³⁷

To summarize, two prominent approaches to justice in health, Daniels' contractarianism and utilitarianism, hold that health inequalities within the same nation are often inequitable and should be addressed. We now consider international health inequalities.

INTERNATIONAL JUSTICE AND HEALTH INEQUALITIES

While theories of intra-national justice deal with questions concerning relationships among people within the same nation, theories of international justice deal with questions concerning the relationships among different nations. There are three basic approaches to questions of international justice: skepticism, realism, and cosmopolitanism.³⁸ Skeptics hold that international justice is impossible, because nations, unlike people, are not moral agents, and they cannot agree on any moral or legal principles for settling disputes. Skeptics point to the failures to enforce international treaties and the dominance of superpowers as proof against the possibility of international justice. If skepticism were the correct view of international justice, then it would not make any sense to say that international health inequalities are just (or unjust).³⁹

Realists hold that international justice is possible because nations are moral agents and can agree on moral and legal principles. International justice is relationship among nations. As politically autonomous agents, nations have the right to enter into agreements, to defend their borders, and to make international laws and treaties. Nations also have duties to honor their agreements and international laws and treaties.⁴⁰

Cosmopolitans agree with the skeptic that justice among nations is impossible, but argue that there can be justice (or injustice) among people living in different nations. Sovereign nations do not have rights or duties, but they represent people, who have rights and duties toward other people. A nation is sovereign only if it has political legitimacy. If a nation lacks legitimacy, then it cannot represent its people in international relations. Sovereign nations should be allowed to make their own laws, defend their territory, and promote their interests. Sovereign nations may use force to remove illegitimate governments from power in order to protect the people living in the geographic area controlled by such governments.⁴¹

Unlike skepticism, realism and cosmopolitanism have the conceptual tools for considering whether international health inequalities are just or unjust. For realists, global inequalities could be justified under principles of justice that hold among different nations. For example, if one applies Rawls' difference principle to justice among nations, then it would follow that health differences are acceptable only if they benefit all nations, especially the least advantaged ones.⁴² For cosmopolitans, global inequalities could be justified under principles of justice that hold among all the people of the world. For example, if one applies the principle of utility to all the people in the world, then it follows that international health inequalities are justified only if they help to maximize the world population's aggregate utility, but they are unjustified if they have the opposite effect.⁴³

To summarize, two prominent approaches to international justice, realism and cosmopolitanism, would hold that global health inequalities are a serious moral issue that should be addressed by theories of justice. The fairness (or unfairness) of global health inequalities would depend on the principles of international justice that one adopts.

EXPANDING THE SCOPE OF JUSTICE AND HEALTH

Most of the debate about justice and health has focused on the problem of access to health care, such as the provision of primary care, speciality care, hospitals, medications, donor organs, and so on. Debates about health care financing and reform, health insurance regulation, the costs of pharmaceuticals all address problems related to access to health care. Without a doubt, access to health care is a very important environmental factor in the distribution of health within society, but it is far from the only factor. As noted earlier, there are many other environmental factors that can affect how health is distributed, such as geography, occupational hazards, environmental regulation, sanitation, housing, economic development, racism, war, and so on. If we ignore these other factors that can affect the distribution of health, we will fail to understand or address important considerations related to justice and health, and our analysis will be incomplete. According to Daniels, Kennedy and Kawachi, we need to broaden our view of justice in health to consider these other factors:

To bring ethics and health policy together, we need a broad view of what justice requires society to do in the promotion of health and the provision of health care ... A broad view of the requirements of justice also means looking upstream from the point of delivery to traditional public health measures. We must consider disease vectors and environmental hazards in the air and water as well as in work and living spaces; we must consider the adequacy of nutrition and shelter; and we must educate people about the risks of tobacco, alcohol, and unsafe sex practices. These familiar risk factors pose a threat to the health of all, but their unequal distribution also raises specific issues of equity ... A broad view also requires that we look even further upstream to a less familiar set of factors, the social determinants of health.⁴⁴

Fiore and Fleming echo these sentiments:

[T]he traditional subject matter of medical ethics ... is largely shaped by the concerns of physicians focused on the biological determinants of disease and on individuals as the locus of health and disease. This 'biomedical individualism' has tended to ignore health factors extending beyond the individual. These include not only the social determinants of health such as social location, i.e. poverty, race, and gender, but, perhaps, more significantly, environmental sources of illness.⁴⁵

Finally, Robert and Smith also argue call our attention to the importance of considering other factors in the environment in bioethical thinking:

With the widespread recognition over the past three decades that health is multiply determined and that medicine is presently less efficacious in improving the public's health than a range of alternative (e.g. social or environmental) interventions, one would have expected a broadening of mainstream bioethical attention far beyond medicine, and accordingly a turn toward bioethical treatment of the complexity of health. But, with several notable exceptions, this expectation has not been borne out.⁴⁶

If one accepts the premise, which we do, that the scope of bioethical thinking about the distribution of health should be expanded beyond addressing access to health care, then some important practical questions arise concerning the most effective means of implementing this commitment. Since there are many different environmental factors that can affect the distribution of health, and societies do not have the time, money or resources to address them all, how should one determine which ones command our immediate attention? Although they argue that bioethicists should consider a wide range of environmental factors related to health, Robert and Smith emphasize the importance of addressing environmental exposures to toxic substances.⁴⁷ Daniels, Kennedy, and Kawachi

emphasize four different environmental factors: (1) early childhood education; (2) improved nutrition for pregnant women and children, (3) improvements in the work environment; and (4) reduction in economic inequalities:

To address comprehensively the issue of health inequalities, governments must begin to address the issue of economic inequalities per se ... The reduction in income disparity ought to be a priority of governments concerned about addressing social inequalities in health.⁴⁸

Smith argues for focusing on the role of poverty in health inequalities:

If the causal connection runs from poverty to ill health, doesn't that provide a strong reason for combating poverty? If we know that poverty is actually a health hazard, isn't requiring some people to live in poverty rather like requiring them to live in a toxic environment? ... I want to suggest that taking steps to reduce poverty would be both more efficient and more fair than the current status quo.⁴⁹

Questions concerning priority setting are not idle queries, since priority setting is important in shaping the public dialogue about health and justice, setting policy, allocating resources, and developing strategies. In the remainder of this article, we will develop a framework for thinking about these questions.

PRACTICALITIES AND PRIORITY SETTING

There are so many different environmental factors that can cause differences in health that it would be counterproductive for bioethicists to address them all at one time. By paying attention to too many environmental factors, bioethicists may lose track of the most important ones, such as access to health care.⁵⁰ To conserve mental energy and to avoid diluting the dialogue, bioethical accounts of justice in health should set priorities based on two considerations: (1) the impact of the environmental factor on health inequalities; and (2) the practicality of developing an intervention to address the factor. The justification for these two considerations follows from a traditional model of rational action, which holds that one should take effective means to one's goals.⁵¹ Assuming that we have the goal of reducing health inequalities through environmental interventions, then we should focus on interventions that have a substantial impact on health, because it is not rational to waste valuable resources trying to address environmental factors that have little affect on health inequalities. We should also focus on environmental factors that we can do something about, since it is irrational to waste time and resources on impossible or infeasible tasks.

While it is tempting to think that one could construct an absolute ranking of priorities with access to health care at the top, we do not think this is possible, because the impact and practicality of different factors will vary from one situation to the next, depending on geographic, social, economic, political, cultural, legal, technological and other circumstances. It will often be the case that access to health care should receive the highest priority in bioethical theory and policy, since this will often be the most important environmental factor related to health inequalities. However, access to care may not always take top priority. In nations facing famine or drought, the inability to obtain food or water may have a greater impact on health inequalities than access to health care. In nations experiencing civil war or rampant lawlessness, the lack of law and order may have a larger affect on health inequalities than access to health care. Problems related to clean water and sanitation may take precedence over access to care when countries lack clean water or adequate disposal of wastes. Access to care usually should receive top billing in bioethical approaches to justice when most people in society have the basic necessities, such as food, clean water, and the rule of law.

Sometimes securing access to care may not be the most effective way to address health inequalities related to particular diseases. Consider the impact of malaria on African nations. The malaria parasite, *Plasmodium vivax*, is transmitted by mosquitoes. The parasite enters the human blood stream when a mosquito bites a human host. After undergoing a series of changes, the parasite leaves the human host during another mosquito bite. Although there are some drugs that treat malaria, the parasites have developed resistance to them.⁵² There is no effective vaccination against malaria. While the development of a new vaccine against malaria would certainly help reduce the impact of this disease, until this occurs, spraying different areas of the environment with pesticides is the most cost-effective strategy of dealing with malaria. Many developing nations continue to use DDT to fight malaria, even though governments and organizations from the developed world, including the WHO, have tried to pressure these nations into not using this chemical, which was outlawed in many developed nations in the 1970s, based on concerns about its impact on the environment.⁵³ The ethical dilemma relating to DDT for malaria control represents a clash between environmental concerns and public health concerns.⁵⁴

Asthma is an example of another disease where improving access to care may not be as important as addressing other factors. There is a growing body of evidence that various environmental risk factors, such as exposure to tobacco smoke, air pollution, and allergens in the home, play a key role in causing people to develop asthma and in exacerbating asthma symptoms in people who already have the disease.⁵⁵ While it is important for people, especially children, to have access to physicians and asthma medications, effective asthma prevention and treatment must address environmental risk factors. Environmental regulations aimed at lowering air pollution, taxes on tobacco products, as well as regulations pertaining to the safety of low-cost housing are policies that can play a key role at reducing the economic and health effects of asthma.

Some environmental factors with a small impact on health care inequalities may still merit a high priority in bioethical thinking because they are easier to address than other factors. For example, health hazards in the work environment can produce many different occupational diseases, ranging from cancer and black lung disease to back injuries and repetitive motion injuries. These hazards tend to have their greatest impact on people who are economically disadvantaged, because these people lack the skills or opportunities to work in safe occupations. Regulations designed to improve the safety of the work environment can often be very effective at reducing occupational diseases. Although workplace hazards have a much smaller impact on the global burden of disease than infectious diseases, it is often less difficult to improve workplace safety than it is to reduce infectious diseases.⁵⁶ Although there are political, economic, technological, and legal barriers to addressing occupational diseases, these obstructions often present a much smaller obstacle than the political, economic, religious, and cultural barriers that undermine attempts to address infectious diseases, such as HIV/AIDS.

Ensuring the safety of food and drugs is another area where it is relatively easy to have a significant impact on health inequality without a great deal of effort. Each year many people become sick or die from dangerous drugs, foods, and herbal remedies. In the US, the Food and Drug Administration (FDA) is responsible assuring the safety and security of foods, drugs, biomedical devices, biological products, and cosmetics.⁵⁷ The US Department of Agriculture (USDA) is responsible for ensuring the safety of beef, poultry, pork, and egg products.⁵⁸ Although illnesses caused by dangerous foods or drugs have a smaller impact on the burden of disease in the US than illnesses caused by obesity or smoking, it is much easier to assure the safety of food and drugs in the US than it is to combat obesity or smoking.

Conversely, some environmental factors with a large impact on health care inequalities may be so difficult to address that they should not merit a very high priority in bioethical theory and policy. Daniels, Kennedy, and Kawachi have stressed the importance of taking steps to address economic inequalities. For many years, epidemiologists have known that health correlates with income: wealthy people tend to be healthier than poor people and wealthier societies tend to be healthier than poor ones. The explanation of the connection between wealth and health is straightforward: wealthy people have greater access to education, health care, food, clean water, shelter, safe jobs, and many resources to treat or prevent disease. Daniels, Kennedy, and Kawachi have gathered data which indicate that income differences within the same society are also associated with health differences. Income inequalities have an important impact on health inequalities even in developed nations, where poor people have access to the basic necessities, such as health care, education, food, shelter, and clean water. According to the authors, 'We cannot eliminate health inequalities simply by eliminating poverty. Health inequalities persist even in societies that provide the poor with access to all standard public health and medical services, as well as basic income and education.'⁵⁹ To combat health inequalities, Daniels, Kennedy, and Kawachi argue that societies must reduce economic inequalities and adopt anti-poverty measures, such as basic education, affordable housing, and income security.⁶⁰

It is difficult to argue against reducing poverty and economic inequality. With the exception of libertarianism, most theories of justice will support the types of social policies advocated by Daniels, Kennedy, and Kawachi. But even if one supports these social policies, should one support them for the reasons given by these authors? We think not. Reducing income inequalities and poverty is much more difficult than developing new drugs, securing access to health care, improving workplace safety, preparing for natural disasters, or enhancing air or water quality. There are profound political, economic, social and legal barriers to addressing poverty and income inequalities. Poverty and income policies are some of the most contentious social policies in the US and many other countries. If bioethicists focus their attention on these problems, they will waste their time, dilute their message, and anger politicians and the public. According to Emanuel:

Following Daniels and colleagues by focusing 'upstream' and getting bioethicists, health policy experts, and the public to ... focus on income inequality is likely to be even more frustrating than focusing directly on health care has been for the last thirty years ... Linking health improvement too closely to social justice could actually backfire ... Convincing the American public to look 'upstream' and make general redistributive efforts key to improving health is unlikely to promote redistribution and could well undermine health care; resistance to redistribution is likely to be stronger than endorsement of expanded access to health care.⁶¹

We agree with Emanuel's assessment of the problems with focusing on poverty and income as strategy for addressing health inequalities. Although we believe that society should address poverty and income inequality, we believe it is unwise for bioethicists to call attention to these problems in order to reduce health inequalities. Bioethicists should focus their efforts on other environmental factors that cause health inequalities, such as access to health care, housing, workplace hazards, clean air and water, and not get bogged down in the politics of poverty and income inequality.

CONCLUSION

In this article, we have argued that bioethical theories and policies concerning the distribution of health in society should address the variety of environmental factors that cause inequalities in health. The scope of bioethical debate concerning justice in health should expand beyond the topic of access to health care and should cover such issues as

occupational hazards, natural disasters, safe housing, air pollution, water quality, food and drug safety, pest control, public health, childhood nutrition, literacy, and many other environmental factors that can cause differences in health. Since it is not practical to address all of the environmental factors that can cause health inequalities, one should set priorities for bioethical theorizing and policy formation. Two considerations shape priority setting in bioethical debates: (1) the impact of the environmental factor on health inequality and (2) the practicality of developing an intervention to address the factor. Deciding the priority of different factors in the bioethics agenda will vary from case to case, depending on geographical, social, economic, cultural, technological, and legal circumstances. In most cases, access to health care should have top priority in bioethical debates about justice, since this factor has a large impact on health inequalities and is easier to address than other factors, such as racism or culture. While we recognize that economic factors, such as poverty and income inequality, can also have a very significant impact on health inequalities, we hold that bioethical discussion should not focus on reducing poverty and narrowing income inequality as a means of reducing health inequality, because these economic issues are politically divisive and highly complex. Income inequality and poverty are important problems for society to address, but bioethicists should focus their attention elsewhere.

Expanding the scope of bioethical debate about justice has some important implications for bioethics and health policy. First, bioethicists should pay greater attention to ethical issues in public health, occupational health, environmental regulation, urban planning, and other disciplines and areas that address environmental factors in health. Although bioethicists have tended to ignore these disciplines, the tide is beginning to change.⁶² Second, governments should increase their funding of research on environmental factors in human health. Third, governments should also consider implementing cost-effective environmental interventions that can reduce inequalities in health, such as pollution control, occupational health, pest control, childhood education, literacy programs, healthy urban planning, disaster preparedness, and food and drug regulation.⁶³

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References

1. Many of the choices like those described in these scenarios within the purview of an area of public policy, research, and scholarship known as environmental justice, which the Environmental Protection Agency (EPA) defines as: 'fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental regulations and policies.' Environmental Protection Agency. Environmental Justice. Accessed 22 March 2005 Available at: <http://www.epa.gov/compliance/environmentaljustice/index.html>. Although many people have begun to think clearly and carefully about the relationship between justice and the environment, these discussions have had little impact on the field of bioethics. For further discussion of environmental justice, see Shrader-Frechette K. Environmental Justice. 2002 New York Oxford University Press
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3. This article will use a broad definition of ‘bioethics’ as simply ‘the study of ethical and social issues in biology and medicine’. Bioethicists may belong to a variety of different disciplines, including philosophy, law, theology, religion, ethics, political science, medicine, public health, social science, and natural science.
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12. We follow Norman Daniels’ definition of health. Health is the absence of disease. A disease is a deviation from normal functioning of the human species that limits the range of person opportunities. For example, a person with chronic, obstructive, pulmonary disease (COPD) has difficulty breathing, because his lungs are not functioning normally. As a result, the person may have trouble engaging in normal activities, such as walking or even light exercise. COPD may produce painful and stressful symptoms, such as shortness of breath, chest pain, coughing, and dizziness. A person with COPD is also prone to contract other disease, such as pneumonia and bronchitis. For Daniels’ views on health and disease, see Daniels N. *Just Health Care.* 1985CambridgeCambridge University Press; and Buchanan A, et al. *From Choice to Chance.* 2000CambridgeCambridge University Press
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16. This model is similar in some respects to Social Impact Assessment (SIA), except that it is simpler than SIA (i.e. has fewer causes), and it also includes physical causes not included in the SIA, such as natural disasters. For a comparison, see The Inter-organizational Committee on Guidelines and Principles of Social Impact Assessment, *Guidelines and Principles for Social Impact Assessment.* Accessed 9 December 2005 Available at: <http://www.st.nmfs.gov/tm/spo/spo16.pdf>. While we welcome additional discussion in the bioethics literature concerning how different environmental factors affect human health, we will not give an in-depth analysis in this article. For more on

environmental explanations of health inequalities, see Gee D, Grimpayne-Sturgesalt D. Environmental Health Disparities: A Framework for Integrating Psychosocial and Environmental Concepts. *Environ Health Perspect.* 2004; 112:1645–1653. [PubMed: 15579407] . Some people treat the access to health care as a separate causal factor distinct from the environment. We prefer to treat access to health care as simply a part of the environment, albeit a very important part. See Kawachi I, O'Neill M. Exploration of health disparities. *EHP Online.* Accessed 18 April 2005 available at: <http://ehp.niehs.nih.gov/docs/2005/7630/7630.html>.

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43. Although we are focusing on Rawlsian contractarianism and utilitarianism in this article, libertarian approaches to international justice might also have some application to global health inequalities. Libertarians hold that social and economic differences among moral agents are acceptable as long as they are not due to theft, fraud, exploitation, or other violations of procedural justice. This does not mean, however, that a libertarian would countenance current global health inequities, since these differences in health might be due to violations of procedural justice, such as theft, fraud, unfair trade practices, and exploitation, which have occurred among nations of the world. For further discussion of libertarianism, see Nozick R. *Anarchy, State, and Utopia*. 1974New YorkBasic Books
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63. The devastation wrought by Hurricane Katrina on August 25–29, 2005 illustrates vividly how environmental factors can affect health inequalities. The hurricane had a greater impact on the socio-economically disadvantaged people than on wealthier people. The wealthier people were

able to evacuate to safety, while the poorer people were left behind. One of the lessons from this hurricane is that better disaster preparedness could have prevented many deaths and injuries from the storm. See Moreno J. In the Wake of Katrina: Has 'Bioethics' Failed? *Am J Bioethics*. 2005; 5(5):W18.

Table 1

Environmental causes of health inequalities

Type of environmental factor	Example
Physical	Sanitation, pollution, geography, natural disasters, pests, physical infrastructure, housing, workplace hazards, pesticides, diet
Social	Race, ethnicity, gender, crime, war, education, literacy, institutions, housing
Cultural	Religion, morality, philosophy, art
Economic	Economic development, income, wealth, markets, taxation, investment, insurance, employment conditions
Legal	Environmental regulations, anti-discrimination laws, criminal laws, public health laws, intellectual property laws, food and drug regulations