

Environment and health: 8. Sustainable health care and emerging ethical responsibilities

Andrew Jameton, Jessica Pierce

The declining condition of the natural environment is beginning to affect the health of populations in many parts of the world.¹⁻¹¹ As a result, health care professionals and organizations need to consider the long-term environmental costs of providing health care and to reduce the material and energy consumption of the health care industry. This may seem a surprising conclusion, given that average human health has, for the most part, improved in recent decades despite environmental decline. As indicated in the World Health Organization's 50th anniversary report,¹² the average life expectancy at birth worldwide has increased rapidly (from 46 years in 1958 to an unprecedented 66 years in 1998), the rate of death among children under 5 has decreased, more people than ever before have access to at least minimal health care services, safe water and sanitation, and new vaccinations and medications await wide distribution.

Yet, these achievements are fragile. In the long term, human health requires a healthy global ecosystem.¹³⁻¹⁷ About 25% of health problems are already environmental in origin.¹⁸ There is no realistic way or current technology available to replace declining natural ecosystem services (e.g., climate stabilization, water purification, waste decomposition, pest control, seed dispersal, soil renewal, pollination, biodiversity and protection against solar radiation) that are essential to health.¹⁹ Although public health experts increasingly recognize the significant role the environment plays in public health, it is less well recognized that personal health care services also depend significantly on and have consequences for the environment.

Linking health care and the environment

Health care figures both as a solution to environmental decline and as a problem. Increasing health problems generated by environmental decline will require medical treatment. At the same time, health care services also damage the environment. In the United States such services generate over 3 million tons of solid waste per year.²⁰ As with other service industries such as hotels and restaurants, hospitals consume energy in heating, cooling, manufacturing and transportation; they occupy large, complex buildings surrounded by concrete and asphalt surfaces; they use high-volume food services, laundry, high-speed transportation, and paper, packaging and disposable supplies, and so on. Health services also pose unique problems, including the use of pharmaceutical and biological products with complex manufacturing processes, environmentally significant precursors and potentially toxic bodily by-products of medications, as well as complex and hazardous solid, air and water emissions, including toxic, infectious and radioactive wastes.²¹

Environmental costs are most evident at the downstream end of health care: the by-products that leave the system as waste. The problems of medical waste, particularly infectious materials (e.g., human tissues and blood) and biohazardous agents (e.g., heavy metals and radioactive isotopes) are fairly well understood and regulated.²²⁻²⁴ Still, several groups are exploring additional sources of environmental harm. Health Care Without Harm (www.noharm.org), a coalition of activists and health care organizations, has advocated the elimination of mercury from health care products.²⁵ They encourage the separation of polyvinyl chloride (PVC) plastics from the collection of infectious wastes because, during the common practice of incinerating infectious wastes, carcinogenic dioxins are released when PVC products are included. Most recently, and more controversially, the coalition has begun

Review

Synthèse

Dr. Jameton is with the Department of Preventive and Societal Medicine, University of Nebraska Medical Center, Omaha, Neb., and Dr. Pierce is with the Department of Philosophy, University of Colorado at Boulder, Boulder, Colo.

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Series editor: *Dr. Michael McCally, Department of Community and Preventative Medicine, Mount Sinai School of Medicine, New York, NY*

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warning patients and health care professionals against the use of vinyl intravenous bags containing phthalate plasticizers, which may leach toxins into patients' bodies.^{26,27}

The Sustainable Hospitals Project of the Lowell Center for Sustainable Production, in Lowell, Mass., is also working on pollution prevention in health care facilities. It is focusing attention on finding alternatives to products that contain potentially harmful materials such as latex, PVC and mercury, particularly through influencing purchasing practices within hospitals.²⁸ The Green Health Center project at the University of Nebraska Medical Center is exploring the ethical principles relevant to providing environmentally sound, high-quality health care.²⁹

Not as well understood, yet perhaps more important than pollution downstream from health care services, are the environmental effects upstream from health care delivery. Health care services rely on an enormous array of natural resources, including common and rare metals, naturally occurring pharmaceutical precursors, rubber, petroleum, biomass and water. Intravenous pumps, x-ray films, latex gloves — each of these common hospital items requires complex manufacturing processes with attendant environmental effects, many of which are felt on the other side of the world.³⁰ The environmental costs of natural resource consumption in health care have not been carefully studied, so the degree to which health care activities contribute to environmental deterioration is difficult to assess. However, because health care services represent a significant sector of intensive North American economies, health care shares responsibility for the environmental problems created by the acquisition, processing and transportation of natural resources required to make the supplies and energy used by consumers.

Sustainable health care

If the earth's ecosystem is to continue to support human health, each community needs to maintain public health and provide health care in ways that will sustain the earth's ecosystem. By many accounts, the environmental crisis results from a combination of population growth, consumption patterns and technology choices.^{31,32} That world population growth must be slowed, and probably reversed, to avoid overwhelming the earth's natural systems has been recognized by many.^{5,33,34} Less well recognized, but equally important, is that the billion members of the world's consumer class threaten future human welfare with their material, and energy-intensive, lifestyles.³⁵ One way to represent the scale of consumption is to use the ecological "footprint": an estimate of the amount of space it takes to generate the energy, food, pasture, consumer goods, etc., that it takes to maintain each of us. The Ecological Footprints of Nations Study³⁶ calculates that "humanity as a whole uses over one-third more resources and eco-services than what nature can regenerate." The United States has a footprint of 9.6 hectares per capita, whereas Canada's average per

capita footprint is 7.2 hectares, still well over the 1.7 hectares globally available per capita.³⁶

Large scale health care systems such as those in Canada and the United States depend on wealthy economies to sustain them. But wealthy economies are unsustainable and must scale down their overall consumption of materials and energy.³⁷⁻⁴¹ If wealthy industrialized societies as a whole are unsustainable, then so are the health care systems housed by these societies.⁴² And if the material scale of these economies is to be reduced, so must the scale of health care. The degree of reduction needed is extremely uncertain, but "Factor X" debates in Europe have set goals for overall reduction of national throughput by factors of one-half, one-fourth, one-tenth and even smaller fractions of current material and energy consumption.⁴³ These levels of reduction are likely to prove very challenging. Indeed, it is extremely unlikely that any imaginable new technology could achieve these reductions in resource consumption without a substantial reduction in the supply of consumer products as well.^{35,44,45} Although no empirical data show that the scale of consumption of natural resources required by industrialized health care systems is ecologically unsustainable, current levels of consumption may challenge our ability to provide health care for future generations. We should thus examine how we can reduce the scale of health care to more modest, sustainable levels.

The ethics of environmental concern in health care

The environmental impact of health care and the puzzle of sustainability raise ethical questions regarding health care's environmental stewardship. Concern for the health of the earth's ecosystems suggests that health care institutions and practitioners should reassess their practices in order to soften or eliminate harmful effects. At the same time, they have to balance their environmental responsibilities with their obligations to serve the immediate needs of patients. Addressing the issue of balance requires combining considerations from both medical ethics and environmental ethics.

The field of medical ethics has focused largely on principles of human autonomy and issues surrounding benefit to individual patients.⁴⁶⁻⁴⁸ It has made significant contributions to our understanding of bedside care, decision-making with patients and the use of new health care technologies. Although some bioethicists have discussed issues with environmental implications — such as new technologies, genetic engineering, overpopulation and treatment of animals — few ethicists have linked bedside concerns to the larger context of global environmental well-being.⁴⁹⁻⁵² Meanwhile, the field of environmental ethics has grown extensively, but with little attention to medicine and health care. It is time for environmental ethics and medical ethics to reopen a dialogue and seek an ethically appropriate balance between immediate individual health needs and sustainability.

The ethical argument for considering sustainability in health care arises from basic ethical commitments common to environmental and medical ethics. First, today's generations have responsibilities for the welfare of future generations. Along with society at large, health care should accept a responsibility to meet current needs in ways modest and clean enough to be sustainable for centuries.^{53,54} Second, humans have a responsibility toward the natural world for the sake of both nature and ourselves.⁵⁵ Indeed, action to reduce the impact of humans on nature is urgent; the World Wide Fund for Nature estimates an overall decline of 30% in the state of nature since 1970.⁵⁶ Third, because about 80% of the world's wealth benefits only 20% of its people, the vast majority have very little. Poverty is one of the main factors contributing to poor health, and it reduces the ability of populations to cope with environmental decline.^{57,58} Justice and sustainability require that health care services be more equitably allocated on a global scale.

But why should the world's wealthy consumer classes, who spend roughly 90% of all of the dollars spent on health care in the world,⁵⁹ be sensitive to ethical principles suggesting that they should reduce their consumption of health care materials and services? Two shifts in standard moral concepts with which people are commonly educated might help here. First, many environmental philosophers work from a concept of personal identity that appreciates individuals as strongly connected with all humans, creatures and the natural world in a cyclical flow of materials and energy.^{60,61} The concept of "ecosystem health" draws upon the close relationship of human health to the condition of nature and makes it conceptually immediate to think of human health as dependent on ecosystem health.⁶² This more holistic self-concept can help individuals to accept an extended sense of responsibility through an appreciation of connectedness with others and the natural world.

Second, part of our sense of personal identity and integrity depends on our ability to assume responsibilities to others, and so a moral conversation conscious of the need for people to meet their responsibilities could help to fulfill more completely the humanness of individuals. This Kantian approach ultimately rests the freedom of the individual on his or her ability to fulfill his or her sense of duty.^{16,63,64} In health care ethics, it would thus become acceptable to expand the ethics conversation over "What does this patient want?" to include "How can we help this patient fulfill his or her sense of responsibility?" Principles of environmental responsibility and awareness of environmental effects need to be built into health care education and decisions at every level.

Key ethical tensions

To establish an ethical balance between environmental concerns and a commitment to patient care, 3 major dilemmas must be addressed: the individual versus the

whole, sustainability versus social justice, and sustainability versus health.

The individual versus the whole

The Hippocratic principle of "do no harm" has strongly influenced the ethics of health care. This principle also requires that health care maintain sustainable practices and avoid harm to both humans and the natural world. Although medicine is already rife with dilemmas in which avoiding harm to patients results in harm or burdens to others, broadening our ethical responsibilities to include nature and future generations will undoubtedly intensify such conflicts. Perhaps the most difficult will be the inevitable conflicts between the individual and the whole. In medical ethics, the tendency has been to emphasize the responsibility of the health care provider to the individual patient — the relationship of trust, the need for the physician to keep the patient's benefit foremost. Global environmental concerns press physicians and other health care professionals to ask first "How will this commitment to care for patients place long-term burdens on the sustainability of health care?"

Sustainability versus social justice

Environmental sustainability and social justice are mutually reinforcing goals, and both are vital elements of population health. Yet the easy alliance of these 2 extraordinarily idealistic goals arouses a deeper sense of unease. The scale of these questions is so broad, and the empirical data available on their interrelationships are so minimal, that one can only speculate.⁶⁵ Can industrialized countries in the northern hemisphere support their high levels of health care consumption without exploiting or ignoring widespread poverty, environmental degradation, ill health and suffering in poorer regions of the world? The scope of the world's present distributive injustice — and the sheer number of people struggling to live with almost nothing — coupled with the profound constraints of our already stressed ecosystems call into question our ability to achieve both sustainability and justice. We may have to ask which should have primacy.

Sustainability versus health

The need for limits suggests potential problems for maintaining good health conditions in the long term. As the 1993 World Bank development report showed, health improvement in the 20th century was closely linked to economic development.⁵⁹ Improved health and life expectancy were afforded by industrial and technological growth that stabilized food supplies, processed sewage, cleaned and transported water, developed vaccines, improved education, established health records and surveillance, and devised effective medical technologies.⁶⁶

However, seeking gains in human health and welfare through aggressive economic development without regard

to environmental effects may guarantee the ecological disaster already at our doorstep. Indeed, the increasing intensity of the agricultural, industrial and energy sectors of the economy can be connected with increasing public health problems.⁶⁷ And, if the world's most developed economies reduce their overall consumption of natural resources and materials to achieve sustainability, and their health service industries thereby accomplish parallel reductions, will these health services become less effective? There is some evidence from less developed nations that good public health can be maintained on minimal resources when these resources are appropriately directed at basic public health infrastructures such as clean air and water, sanitation, education and stable food supplies.^{68,69} Will hospitals and clinics in the most highly technological and developed economies be able to learn to treat patients effectively while using fewer natural resources? If a significant scaling down of the health care sector is necessary, this may mean that some acutely ill individuals needing costly therapies will not receive treatment.⁵⁰ Will the already troubling ethical issues of rationing high-tech care necessarily be extended to an even wider range of health care services?⁷⁰

Conclusion

Health care professionals can offer leadership both in devising environmentally sound health care practices and in articulating the principles of sustainable health. Jane Lubchenco has urged scientists to undertake a new social contract to redirect the research enterprise from immediate social benefits toward a sustainable biosphere.⁷¹ Similarly, health care professionals need to include environmental care among their primary ethical obligations.⁷² This obligation can first be expressed by increasing consciousness of environmental issues in the education of health care professionals and patients, but it must eventually lead to appreciable reductions in the material scale of the world's most advanced health care services. Health care professionals will thus have to become actively involved in the ethical debates concerning balancing environmentally responsible health care with clinical services.

If the bright vision of the World Health Organization's 50th year is to be sustained, bioethics and health policy must begin to speak with one voice both to the needs of individuals and to the limitations of nature. Because earth's biological systems are necessary for human well-being, our medical pursuit of health must not diminish the abundance and vitality of the natural world.

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Reprint requests to: Dr. Andrew Jameton, Department of Preventive and Societal Medicine, University of Nebraska Medical Center, 986075 Nebraska Medical Center, Omaha NE 68198-6075, USA; fax 402 559-3773; ajameton@unmc.edu

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