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Journal

UCLA Journal of Environmental Law and Policy, 35(2)

Author

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Publication Date

2017

DOI

10.5070/L5352035647

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The Case for Integrating the Environment into the Definition of Bioethics

Mary W. Chaffee

ABSTRACT

A profession's definition of a concept is a powerful act that illuminates key aspects, while leaving discarded notions in the dark. In 1971, Van Rensselaer Potter first coined the term "bioethics" to advocate for the exploration of medical science and values with the goal of protecting life on earth.¹ But, in the years since, bioethics became solely focused on issues in medicine and health care without recognizing their broader links to the environment. This Note argues that it is shortsighted to view bioethics as divorced from the world outside hospital doors. It further argues that an expanded conceptual model of bioethics is necessary in light of the complexities of contemporary society. Bioethical analysis will be inadequate if the narrow scope of the current definition of bioethics remains unchallenged. If Potter's broader view of bioethics were embraced, bioethical work would include examination of the moral and legal foundations for human health and environmental protection policies. Bioethical analysis could then invite debate on topics like land use and pollution control policies, for example, and not merely on patient care issues within the health care system.

1. Jessica Pierce, *Environmental Bioethics—A Manifesto*, HEALTH AFTER OIL (Nov. 13, 2009), <https://healthafteroil.wordpress.com/2009/11/13/environmental-bioethics—a-manifesto> [<https://perma.cc/99P9-CC5B>].

AUTHOR NOTE

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I.

INTRODUCTION

This broader discourse must reach beyond the bedside, beyond the hospital doors, and out into the world within which medicine is situated and which largely determines who stays healthy and who winds up sick.²

—Jessica Pierce

In 1971, Van Rensselaer Potter first coined the term “bioethics” to advocate for the exploration of medical science and values with the goal of protecting life on earth.³ Historically, bioethicists have focused primarily on medical dilemmas and issues in health care more generally, and have paid scant attention to how environmental issues influence human health.⁴

Examining the history of the word “bioethics” illuminates why it was medicalized; however, the ethical decisions that permeate our lives today require broader contemplation of factors that influence human health. Failing to consider influences outside the

2. *Id.*

3. *Id.*

4. David B. Resnik, Bioethics and Global Climate Change, 39 *BIOETHICS FORUM* 1 (2009).

health system is analogous to standing on a porch mulling over whether to use a rake or a broom to disperse a pile of leaves, while a tornado is bearing down on the house. Looking at the “bigger picture” provides important context for our ethical decisions.

Ethical issues relating to the maintenance and management of human health do not exist solely within hospitals and medical clinics. The environment in which people work, play, and carry out their lives significantly influences their health. Thus, ethical discussions within the health sector that are insulated from the broader world may not address important influences on human health. Potter’s broader view of bioethics should be reexamined and adopted in light of growing knowledge regarding health and the environment.

This Note argues that ethical work that is limited to issues within the health system should be termed “medical ethics.” Broader ethical issues that have links to the health care system as well as to public health, social determinants of health, and environmental health should be defined under the broader conceptualization of “bioethics.”

The remainder of this Note proceeds as follows: Part II—How a Narrow Conception of Bioethics Emerged describes how bioethics came to focus on ethical issues that are largely confined to medicine. Part III—Indicators of the Georgetown View’s Proliferation offers contemporary examples of the narrow scope of bioethics. Part IV—The True Scope of Bioethical Dilemmas discusses the value of broadening the definition of bioethics to include public health activities, social determinants of health, and the human connection to the environment. Part V—Why Potter’s View is Better Aligned with the True Scope of Bioethical Dilemmas demonstrates how complexity theory and biocentrism are aligned with Potter’s view of bioethics. Part VI—A Broader View of Bioethics in Practice discusses how bioethics practice could be adapted to embrace Potter’s view. Part VII—Conclusion summarizes key elements in the Note.

II.

HOW A NARROW CONCEPTION OF BIOETHICS EMERGED

Scientific evidence helps tell us what we can do and ethics helps tell us what we should do.⁵

—Lisa M. Lee, PhD, MS

A. *Bioethics Has Two Fathers.*

In the 1880s, Nikola Tesla and Thomas Edison engaged in a “war of the currents,” which would ultimately determine whose vision of an electrical system powered the world.⁶ Edison triumphed, and Tesla’s contributions were obscured by history.⁷

The conception of “bioethics” had similar beginnings. Prior to the 1960s, “medical ethics” focused on physicians, patient welfare, and medical professionalism.⁸ But then, the 1960s boomed with advancements that stretched the boundaries of medical ethics, including organ transplantation, a new definition of death, technology to sustain human life, and new forms of contraception.⁹ To address these changes, two men—Van Rensselaer Potter and André Hellegers—independently introduced the term “bioethics.” The two men proposed distinct definitions for the term: Hellegers’s was narrow and medically-focused while Potter’s was much broader. The former definition took hold and has eclipsed the latter for several decades, which has had significant implications for an entire field of scholarship, professional practice, and research.

5. Lisa M. Lee, *Integrating Ethics for the Nation’s Health*, 130 PUB. HEALTH REP. 199, 199 (2015).

6. Tia Ghose, *Nikola Tesla vs. Thomas Edison: Who Was the Better Inventor?*, LIVESCIENCE (July 10, 2014, 7:18 AM), <http://www.livescience.com/46739-tesla-vs-edison-comparison.html> [<https://perma.cc/B2WV-PLV2>].

7. *Id.*

8. Daniel Callahan, *Bioethics and Policy—A History*, in FROM BIRTH TO DEATH AND BENCH TO CLINIC: THE HASTINGS CENTER BIOETHICS BRIEFING BOOK FOR JOURNALISTS, POLICYMAKERS, AND CAMPAIGNS (Mary Crowley ed. 2008), <http://www.thehastingscenter.org/Publications/BriefingBook/Detail.aspx?id=2412> [<https://perma.cc/4QJB-FQJ5>].

9. *Id.*

B. *Birth-Father #1: Van Rensselaer Potter*

Van Rensselaer Potter was one of two individuals to propose a new discipline known as “bioethics” that would merge science and philosophy.¹⁰ He broadly conceived of bioethics as a global integration of biology and values, and envisioned that it would guide human survival.¹¹

Potter was trained as a biochemist and engaged in a career as a cancer researcher at the University of Wisconsin.¹² In the 1960s, in addition to his cancer research, he wrote articles on human progress, the interrelation of science and society, and individuals’ roles in modern society.¹³ Potter crafted the term “bioethics” to express the need to balance medical science with human values.¹⁴ Though some disagreement continues about whether Potter was the first to employ the term, he was first to publish a book about it, *Bioethics: Bridge to the Future*, which appeared in 1971.¹⁵

Potter perceived survival of the human species as the vital priority.¹⁶ The new discipline of bioethics, as he saw it, would address basic problems related to “human flourishing.”¹⁷ Importantly, Potter viewed bioethics as a bridge between present and future, nature and culture, science and values, and humans and nature (thus the title of his first book).¹⁸ He was concerned about problems like population growth, poverty, pollution, and progress.¹⁹ He saw these as threats to human viability, and bioethics as a solution—a “new science of survival.”²⁰ Potter

10. Henk ten Have, *Potter’s Notion of Bioethics*, 22 KENNEDY INST. ETHICS J. 59, 59 (2012).

11. Peter J. Whitehouse, *The Rebirth of Bioethics: Extending the Original Formulations of Van Rensselaer Potter*, 3 AM. J. BIOETHICS W26, W26 (2003).

12. ten Have, *supra* note 10, at 60.

13. *Id.*

14. Whitehouse, *supra* note 11, at W26.

15. ten Have, *supra* note 10, at 60.

16. Christina Richie, *A Brief History of Environmental Bioethics*, 16 AM. MED. ASS’N J. ETHICS 749, 749 (2014).

17. ten Have, *supra* note 10, at 59. Human flourishing can, in simple terms, be considered overall well-being.

18. *Id.*

19. *Id.* at 60.

20. *Id.*

placed bioethics in the *bios*—the life in the world—drawing connections between medicine and conservation.²¹

C. Birth-Father #2: André Hellegers, Father of the Georgetown Perspective.

Dr. André Hellegers at Georgetown University's Kennedy Institute of Ethics in Washington, DC, proposed a new field called "bioethics" contemporaneously with Potter's efforts to do the same.²² Hellegers, the Georgetown Institute's first director, was a professor of obstetrics and gynecology. His institute focused on perinatal medicine (health care from conception to shortly after birth), and care in operating and delivery rooms, as well as other clinical areas where life and death decisions involving both science and ethics are made daily.²³ Hellegers had served for two years as Deputy Secretary General of the Papal Commission on Population and Birth Control and had become a confidant to leaders in the Catholic Church.²⁴

Hellegers' Georgetown center, formally the Joseph and Rose Kennedy Institute for the Study of Human Reproduction and Bioethics, was funded by a grant from the Kennedy family.²⁵ It

21. Richie, *supra* note 16, at 749.

22. Albert R. Jonsen, *A History of Bioethics as Discipline and Discourse*, in *BIOETHICS: AN INTRODUCTION TO THE HISTORY, METHODS, AND PRACTICE* 3 (Nancy A. Jecker, et al., 2nd ed. 2007).

23. Panorama, *Institute for Bioethics Established at Georgetown University*, 21 *BIOSCIENCE* 1090, 1090 (1971).

24. John C. Harvey, *Andres Hellegers, the Kennedy Institute, and the Development of Bioethics: The American-European Connection*, *The Development of Bioethics in the United States: An Introduction*, in *THE DEVELOPMENT OF BIOETHICS IN THE UNITED STATES* 42 (Jeremy Garrett, Fabrice Jotterand & D. Christopher Ralston, eds. 2013). This Note presents an overview of the establishment of bioethics in the United States. For a more in-depth analysis of other forces involved, including international activities, the reader is directed to books like "The Development of Bioethics in the United States" edited by Jeremy R. Garrett, Fabrice Jotterand & D. Christopher Ralston (2013) or "The History and Future of Bioethics: A Sociological View" by John H. Evans (2012).

25. Panorama, *supra* note 23, at 1090. Joseph and Rose Kennedy are the parents of President John F. Kennedy, Senator Robert F. Kennedy, and Senator Edward M. Kennedy. Rose and Joseph Kennedy's third child, Rosemary, was born mentally disabled and lived most of her life in psychiatric institutions after a lobotomy was performed on her at age 23. The Associated Press, *Rosemary*

would have the unique purpose of combining science and ethics, as well as considering contemporary questions such as whether parents of a mongoloid²⁶ child have a duty to keep the child alive, what obligation a physician has to keep an aged patient alive when the patient's condition is hopeless, and who should benefit from artificial kidney machines when few are available.²⁷

While Potter's view of the term bioethics included long-range environmental concerns, the Georgetown perspective was much narrower in its scope.²⁸ It defined bioethics as the ethical analysis of moral questions arising in medical practice due to advances in biomedical science and technology.²⁹ According to an early Kennedy Institute publication, the Georgetown conceptualization of bioethics limited bioethics to the study of the ethical dimensions of medicine and the biological sciences.³⁰ Bioethics, as framed by Georgetown, would deal primarily with concrete medical dilemmas in three areas:

- 1) Rights and duties of patients and health professionals
- 2) Rights and duties of research subjects and researchers, and
- 3) Formulation of public policy guidelines for clinical care and biomedical research.³¹

D. *Georgetown's Dominance*

Over the last four decades, the Georgetown view of bioethics has become dominant and has marginalized Potter's broader con-

Kennedy, Senator's Sister, 86, Dies, NY TIMES (Jan. 8, 2005), http://www.nytimes.com/2005/01/08/obituaries/rosemary-kennedy-senators-sister-86-dies.html?_r=0 [https://perma.cc/X3J2-FC8S].

26. "Mongoloid" is an outdated term for Down syndrome, a genetic disorder, that was used in the 1970s. Len Leshin, *What's in a Name?*, DOWN SYNDROME: HEALTH ISSUES, <http://www.ds-health.com/name.htm> [https://perma.cc/QP9S-NZAM] (last visited Mar. 26, 2016).

27. Panorama, *supra* note 23, at 1090.

28. Warren T. Reich, *The Word "Bioethics": The Struggle over Its Earliest Meanings*, 5 KENNEDY INST. ETHICS J. 19, 22 (1995).

29. Jonsen, *supra* note 22, at 3.

30. *Id.*

31. Reich, *supra* note 28, at 20.

ception of the field.³² The narrow, medicine-focused Georgetown definition of bioethics may have thrived while Potter's did not because Hellegers obtained federal and private funding for the new Georgetown Institute; endowed chairs in bioethics; encouraged government and other agencies to seek bioethical consultation; built a network of accomplished scholars in ethics, biology, and social sciences; and also launched a graduate program in philosophy and bioethics.³³ Potter had none of these systems in place to promote his view of bioethics.³⁴ He was a career biochemist and a part-time bioethics scholar.³⁵ He lacked funding and institutional tools to promote his vision, as well as an interdisciplinary team of scholars to disseminate his perspective.³⁶

Potter was influenced by the work of Margaret Mead, who used anthropological analysis to study the future of human civilization.³⁷ Mead's ideas contributed to the formulation of some of Potter's early theories, including the idea that bioethics is necessary to provide wisdom in the management of scientific knowledge, specifically in the integration of facts and values.³⁸ Potter also drew on the nascent field of environmental ethics, which grew in the 1960s in response to concerns over pesticides, pollution, and the depletion of natural resources.³⁹ Though ecology was just beginning to enter public consciousness, people grasped the immediacy of the biomedical dilemmas that the Georgetown institute of bioethics had identified, while Potter's concerns about toxic substances and other environmental issues were seen as remote and complex.⁴⁰

32. *Id.* at 21.

33. *Id.* at 23. Hellegers' institute had visible support from President Kennedy's family. Panorama, *supra* note 23.

34. *Id.*

35. *Id.*

36. *Id.*

37. ten Have, *supra* note 10, at 62.

38. *Id.* at 64.

39. *Id.* at 71.

40. Reich, *supra* note 28, at 21–22.

Figure 1 is a graphic illustration of the major distinctions between the two conceptions of bioethics.

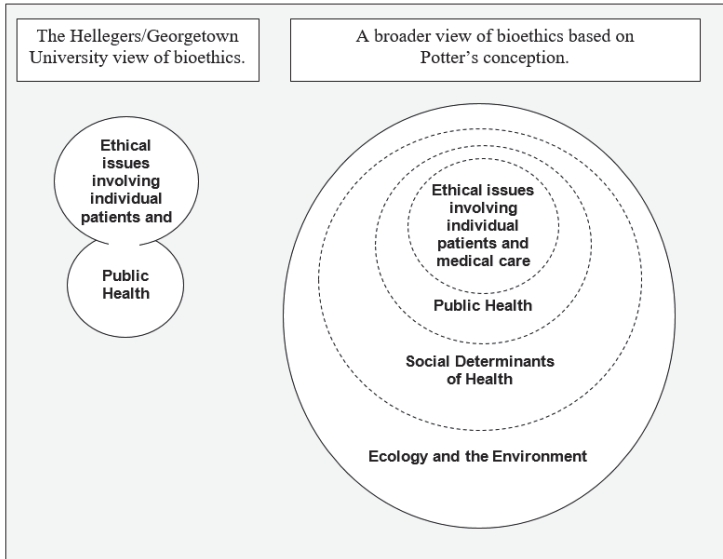


Figure 1. Comparison of two views of bioethics. The Hellegers/Georgetown University view of bioethics represents a conceptualization of ethical activities limited to those involving medical care, though it is sometimes linked to public health.

The representation of Potter's view of bioethics includes activities and actions outside the health sector that influence human health and the health care system. Though the term "social determinants of health" was not used when Potter proposed his definition, these factors exist in the environment and influence health.

E. The Georgetown Definition of Bioethics Takes Hold

In the 1970s, the health care system produced many dilemmas for the new Georgetown-inspired field of bioethics to grapple with. One concerned the recent development of renal dialysis, which offered life-saving treatment to patients with end-stage renal disease (kidney failure). There were more people in need of

artificial kidney machines than there were machines available.⁴¹ One hospital approached this bioethical dilemma by allowing a committee of laypeople to select which patients would receive dialysis—and a chance at life—and which would be left to die.⁴²

As the public became aware of other medical ethics issues, bioethics became increasingly linked to health sector dilemmas. One such dilemma emerged in 1973, when some physicians admitted to letting immature newborn infants die because they had little chance for a healthy life.⁴³ New issues surrounding the right to live or die emerged as technology evolved. Prominent right-to-die cases like those of Karen Ann Quinlan and Nancy Cruzan captured the public's attention, as did the issue of physician-assisted suicide.⁴⁴ Advances in organ transplantation, cloning, and medically-assisted human reproduction all drew scrutiny within the new field of bioethics.⁴⁵ Additionally, politics collided with ethics on issues like abortion and stem cell research. These biomedical problems were tantalizing to the media and created a demand for courses and texts specific to the study of bioethics.⁴⁶

F. Potter Attempts to Resuscitate His Bioethics Model

Potter disapproved of the Georgetown view of bioethics, not because it narrowly focused on medical issues, but because it focused on individuals, thereby neglecting ecological, population, and social problems.⁴⁷ In his cancer research, Potter was aware of links between carcinogens in the environment and the instance of disease; this informed his view of the need to incorporate environmental factors in bioethics.⁴⁸ He considered the Georgetown view to focus on short-term, “old” problems (e.g., abortion and euthanasia), rather than on those that

41. Jonsen, *supra* note 22, at 5.

42. *Id.*

43. *Id.* at 6.

44. *Id.*

45. *Id.* at 7–9.

46. Reich, *supra* note 28, at 22.

47. ten Have, *supra* note 10, at 76.

48. Reich, *supra* note 28, at 21.

contemporaneously imperiled the continued existence of the human species.⁴⁹ Potter believed environmental issues could not be cleaved from the medical perspective, as both were needed to foster human health.⁵⁰

In the late 1980s Potter attempted to revive his view of bioethics by linking the medical system to nature in his second book *Global Bioethics: Building on the Leopold Legacy*.⁵¹ He credits himself for coining the term “bioethics” to describe the merger of ethical values and biological facts.⁵² Potter acknowledged the “independent movement” at Georgetown University that applied “bioethics” exclusively to medical problems⁵³ but criticized that view:

It is not clear why the ethical issues embedded in this entire matter—i.e., the exponential increase in the human population and the impact of this uncontrolled growth on human survival—should not be considered basic to the contributors’ discussion of the role of the medical profession in the modern world.⁵⁴

Potter wrote that even though he had presented a broader conception, bioethics came to exclusively refer to the ethics of selecting and exercising technically possible medical options.⁵⁵ He noted that issues like abortion, sterilization, and surrogate pregnancy have short-term, immediately visible consequences; they relate to the maintenance and prolongation of individual lives.⁵⁶ Potter argued that this narrow medical focus left his school of bioethics, and specifically his view that bioethics should consider human values in combination with environmental exploitation, largely forgotten.⁵⁷

49. ten Have, *supra* note 10, at 76.

50. *Id.* at 77.

51. Richie, *supra* note 16, at 749.

52. VAN RENSSELAER POTTER, *GLOBAL BIOETHICS: BUILDING ON THE LEOPOLD LEGACY* 71 (Ellen M. Link ed., 1988).

53. *Id.*

54. *Id.* at 73.

55. *Id.* at 1.

56. *Id.*

57. *Id.* at 1, 2.

In further advocating for his broader conception of bioethics, Potter wrote that “[t]he time has come to recognize that we can no longer examine medical options without considering ecological science and the larger problems of society on a global scale.”⁵⁸ Eighteen years after initially proposing the term “bioethics,” Potter proffered the term “global bioethics” to emphasize the importance of uniting medical and ecological thinking within a single field.⁵⁹ By rebranding his original definition in this manner he hoped to successfully integrate the medical and ecological domains.⁶⁰

Potter acknowledged that his revised definition did not catch on,⁶¹ yet he continued to argue for the adoption of a broader view of bioethics and even asked the United Nations to encourage the proliferation of this approach.⁶²

III.

INDICATORS OF THE GEORGETOWN VIEW’S PROLIFERATION

Bioethics has veered away from this broad Potterian vision.⁶³

—Jessica Pierce

A. *Bioethics Organizations*

Several indicators demonstrate that the Georgetown view of bioethics has come to dominate contemporary bioethics practice and scholarship. The Georgetown perspective is reflected in the mission statements of bioethics organizations and in contemporary bioethics textbooks. For example, the Center for Practical Bioethics asserts that ethics is a philosophical discipline pertaining to notions of good and bad, right and wrong, and that bioethics is the application of ethics to the “field of medicine and health care.”⁶⁴ The Center contends that bioethics controversies

58. *Id.* at 2.

59. Reich, *supra* note 28, at 25.

60. ten Have, *supra* note 10, at 76.

61. Reich, *supra* note 28, at 25.

62. ten Have, *supra* note 10, at 79.

63. Pierce, *supra* note 1.

64. *What Is Bioethics?*, CENTER FOR PRACTICAL BIOETHICS, <https://www.practicalbioethics.org/what-is-bioethics/> [<https://perma.cc/8APM-CAKH>].

fall into four domains: aging and end of life, clinical and organizational ethics, life sciences, and disparities of health and health care.⁶⁵ These domains, focused on medical science and health care, reflect the Georgetown formulation. Similarly, the American Society for Bioethics and Humanities is an educational organization that employs a Georgetown perspective by encouraging “consideration of issues in human values as they relate to health services, the education of health care professionals, and research.”⁶⁶

B. *Bioethics Textbooks*

Contemporary bioethics textbooks are also generally framed within the Georgetown view of bioethics. Bioethicist David Resnik calls abortion, euthanasia, informed consent, privacy, reproductive health, and access to care the “bread and butter” bioethics topics.⁶⁷ It is primarily these issues that appear in contemporary bioethics texts.

An examination of fifteen bioethics books published between 2006 and 2016 revealed a strong focus on the “bread and butter” topics and a cluster of other medical issues including human subjects research, genetics, organ donation and transplantation, cloning, and rationing.⁶⁸ Seven of the fifteen bioethics books surveyed contained some content on public health ethics (though it tended to be minimal and narrowly focused on influenza pandemic issues). Five of the fifteen books surveyed contained content that addressed an environmental issue linked to health, but again the vast majority of each book’s content was on the “bread and butter,” medically-focused ethical issues that arise within the health system.

65. *Id.*

66. *About the American Society for Bioethics and Humanities*, AMERICAN SOCIETY FOR BIOETHICS AND HUMANITIES, <http://asbh.org/about/american-society-bioethics-humanities> [https://perma.cc/Z84L-VWJ2].

67. Resnik, *supra* note 4, at 1.

68. The author surveyed online book retailers and examined books on bioethics published in the ten year period before the author wrote this Note.

IV.

THE TRUE SCOPE OF BIOETHICAL DILEMMAS

What are our obligations to one another? Who is responsible, to whom and for what?⁶⁹

—Center for Practical Bioethics

A. *The Health Sector as a Porous System*

Picture a hospital—the outside walls, doors, and windows. You might imagine a physical structure standing alone on a parcel of land. But, the building is porous, the site of numerous activities that reach out into the surrounding community. Employees, patients, students, and visitors come and go. Wood was harvested and stone was excavated to build this structure. Supplies such as intravenous tubing and EKG equipment, produced at locations far distant, enter through delivery docks. Those who temporarily inhabit the hospital ingest food grown and packaged outside the facility.

Solid wastes like paper and used surgical sponges are trucked away from the building to be buried or burned. Phone systems and the internet move information in and out of the building. Electricity and water, originating from locations outside the hospital, arrive via sophisticated delivery networks. Human waste is drained from the building for treatment and dispersal into surface waters or soil. Air is taken in by the building vents, circulated, and expelled.

Patients who arrive for care may have an illness influenced by genetic, social, or environmental factors. Patients carry with them a lifetime of experiences and relationships in the natural, built, and spiritual worlds. One patient may be aged, one infected by contagious disease, one victimized by crime, one infertile but wanting a family, and yet another undergoing treatment for cancer caused or worsened by environmental toxins or hazardous materials used in construction. Water may have coursed through aging lead pipes into a toddler's home and caused a mental deficiency. A veteran with post-traumatic stress

69. CENTER FOR PRACTICAL BIOETHICS, *supra* note 64.

disorder may obtain relief through medical marijuana in a location where it is not legal to use. A young father may catch fish to feed his family from a harbor polluted by illegally-dumped chemicals, resulting in health problems in his children.

A hospital does not stand alone, divorced from its community and the world around it. When a patient arrives for care, that patient does not leave behind all external influences. Yet, to a great extent, contemporary bioethics disregards factors external to the health system.

B. *The Human Connection to the Environment*

Visionary conservationist Aldo Leopold wrote about the interactions between humans and their environment in his revered 1949 book *A Sand County Almanac*. Leopold defined an ethic as a differentiation of social from anti-social conduct.⁷⁰ He pointed out that an ethical dissociation exists where Americans sing their praise for the land of the free, but pollute their water and land, exterminating plant and animal species.⁷¹ Leopold argued there was no ethic for dealing with man's relation to land as well as to the animals and plants that inhabit it.⁷² In Leopold's view, man's relation with land was solely economic, with man enjoying its privileges yet refusing its obligations.⁷³ He called for a "land ethic" where *Homo sapiens* was not conqueror of the land-community, but its member and citizen, demonstrating respect for the entire community of residents of the land.⁷⁴ Both Aldo Leopold and Van Rensselaer Potter recognized, and drew attention to, the influence that humans have on the environment and vice versa.

C. *Social Determinants of Health*

Social determinants of health are non-medical factors that affect average health as well as its distribution in populations.⁷⁵

70. ALDO LEOPOLD, A SAND COUNTY ALMANAC 238 (1949).

71. *Id.* at 239–40.

72. *Id.* at 238.

73. *Id.*

74. *Id.* at 240.

75. Leiyu Shi, Jenna Tsai & Senyeong Kao, *Public Health, Social Determinants of Health, and Public Policy*, 29 J. MED. SCI. 43, 44 (2009).

They are complex, integrated social and economic structures that are responsible for uneven distributions of health (inequities).⁷⁶ These determinants include socioeconomic status, living and working conditions, lifestyle and behavior, family and social network, demographics, and physical environment.⁷⁷ A broader view of bioethics would take these factors into consideration.

D. *Public Health*

While most health services are delivered to individuals within the health system, broader measures in the community also influence health. The field of public health concerns the actions that society undertakes to assure healthy conditions for its members through a focus on populations, rather than individuals.⁷⁸ There is a quintessential tension in public health between individual autonomy and public beneficence.⁷⁹ Public health activities involve trade-offs between the public good and private interests⁸⁰ and entail numerous issues that would be appropriate to include under a broader umbrella of “bioethics.” Public health includes population-focused efforts such as immunizations, workplace safety, control of infectious disease, reduction of chronic diseases through smoking cessation, nutritional advancements that eliminate disease, drinking water fluoridation, family planning, and motor vehicle safety strategies.⁸¹

Ethical issues often emerge related to public health efforts that may implicate both the health system and the broader community. Public health regulations may erode fundamental civil liberties such as privacy and the freedom of movement and

76. *NCHHSTP Social Determinants of Health* (2016), CENTERS FOR DISEASE CONTROL AND PREVENTION, <http://www.cdc.gov/nchhstp/socialdeterminants/definitions.html> [<https://perma.cc/D8BV-JQ4F>] (last updated Mar. 21, 2014).

77. Shi, Tsai & Kao, *supra* note 75, at 44.

78. Lawrence O. Gostin, *Public Health, in FROM BIRTH TO DEATH AND BENCH TO CLINIC: THE HASTINGS CENTER BIOETHICS BRIEFING BOOK FOR JOURNALISTS, POLICYMAKERS, AND CAMPAIGNS* 143, 143 (Mary Crowley ed. 2008), <http://www.thehastingscenter.org/Publications/BriefingBook/Detail.aspx?id=2246> [<https://perma.cc/S8YZ-HHDR>].

79. Lee, *supra* note 5, at 199.

80. Gostin, *supra* note 78, at 143.

81. Shi, Tsai & Kao, *supra* note 75.

association.⁸² For example, regulations prescribing sanitation may restrict freedom to contract, property use, and the commercial marketplace.⁸³

Ethics consultations are readily available to health care providers and researchers who face ethical problems in clinical medical and research.⁸⁴ However, public health workers including, for example, community health nurses, educators, and counselors, generally do not have ethics resources available. A broader model of bioethics, that includes public health, would begin to address the need for ethics resources in community public health activities.

E. *The Environment and Health*

Contemporary medical-centric bioethics does not generally acknowledge environmental links to health. However, it is widely accepted that environmental issues including climate change, population growth, over-consumption of resources, water shortages, depletion of fish and forests, and species extinction,⁸⁵ can have a range of negative effects on human health, welfare, and moral development.⁸⁶ Bioethicist David Resnik has identified a number of specific environmental effects on health, including:

- Pesticides, pollution, and toxic chemicals cause human disease;
- Ecosystem damage deprives people of clean water and other ecological resources;
- Excessive fishing and hunting reduces food sources;
- Biodiversity loss deprives people of economically or medically valuable species and destabilizes ecosystems; and
- Deforestation worsens global warming.⁸⁷

82. Gostin, *supra* note 78, at 143.

83. *Id.*

84. Lee, *supra* note 5, at 200.

85. James Dwyer, *How to Connect Bioethics and Environmental Ethics: Health, Sustainability, and Justice*, 23 *BIOETHICS* 497, 497 (2009).

86. DAVID B. RESNIK, *ENVIRONMENTAL HEALTH ETHICS* 59 (2012).

87. *Id.*

A tradition of moral philosophy teaches that it is wrong to ignore suffering.⁸⁸ Yet global environmental problems cause suffering for humans and throughout nature.⁸⁹ To remedy this, it is vital to recognize the connection between environmental degradation and human health: healthy ecosystems are essential to human health.⁹⁰ But, generally, contemporary medical-centric bioethics does not acknowledge environmental linkages to health.

Resnik has identified a number of reasons why environmental issues may not be addressed by traditional bioethics. First, most bioethicists work in health care organizations such as hospitals and medical schools, and thus environmental issues are simply not their priority.⁹¹ Bioethicists employed in health care systems are paid to solve health care problems, not to examine environmental issues.⁹² Additionally, encounters between medical personnel and patients typically do not directly address environmental impacts.⁹³ Thus, the Georgetown definition of bioethics has been adequate.

Bioethics has largely ignored the environmental issues that often result in a patient's need for health care in the first place.⁹⁴ Bioethics has remained engaged with the more narrow medical enterprise, without placing that enterprise within the larger context of the planet's health.⁹⁵ Health, however, is not affected solely by forces within the health care system, and the ethical issues that are woven into the provision of health care are not segregated from the environment outside hospital walls. To examine medicine and health care in a vacuum removes the context for understanding many moral problems that arise within the health system.⁹⁶

88. Jessica Pierce, *Can Bioethics Survive in a Dying World?*, 23 J. MED. HUMANITIES 3, 5 (2002).

89. *Id.*

90. *Id.*

91. Resnik, *supra* note 4, at 1.

92. *Id.*

93. *Id.*

94. Dwyer, *supra* note 85, at 497.

95. Pierce, *supra* note 1.

96. *Id.*

IV.

POTTER'S VIEW IS BETTER ALIGNED WITH THE TRUE SCOPE OF BIOETHICAL
DILEMMAS

Encountering a fruitful idea, we say, Ah-ha! and see the world anew and cannot imagine it otherwise.⁹⁷

—Van Rensselaer Potter

A. *The Value of Theory*

Because human health, health care, and the environment are interwoven and influence each other, Potter's broader view of the scope of bioethics is better positioned than the contemporary Georgetown framework to address today's complex ethical issues. This view is consistent with complexity theory (also known as complex adaptive systems theory) as well as the concept of biocentrism. Complexity theory is a broad explanation for observed phenomena.⁹⁸ As the preeminent biologist E.O. Wilson notes, it is human nature to seek to put knowledge into context, and nothing in science—or life—makes sense without theory.⁹⁹ Thus, it is helpful to apply the theoretical frameworks of complexity theory and biocentrism to bioethics, in order to determine how best to define the term.

B. *Complexity Theory Offers Support for Potter's View of Bioethics*

1. Complexity Theory—An Overview of its Characteristics

Complexity theory shines light on how complicated systems like the health system function in practice, and demonstrates the need to view bioethics as linked to the environment. Complexity theory seeks to explain complex behavior in nonlinear systems, which have identifiable characteristics including porous

97. H. Tristram Engelhardt, Jr., *Foreword* to VAN RENSSELAER POTTER, *GLOBAL BIOETHICS: BUILDING ON THE LEOPOLD LEGACY*, at vii (1988).

98. *Understanding Science*, UNIVERSITY OF CALIFORNIA MUSEUM OF PALEONTOLOGY, http://undsci.berkeley.edu/article/howscienceworks_19 [<https://perma.cc/BM9C-T4VN>] (last visited Mar. 26, 2016).

99. EDWARD O. WILSON, *CONSILIENCE—THE UNITY OF KNOWLEDGE* 56 (1998).

boundaries, the emergence of new phenomena, and the co-evolution of interlinked systems.¹⁰⁰

2. Porous Boundaries

A complex adaptive system resides within, and interacts with, other systems that influence it.¹⁰¹ Boundaries in complex adaptive systems are porous—there is exchange and movement between multiple levels of systems that interact.¹⁰²

A lung can illustrate the concept of porous boundaries. A person's lung (one system) resides within a body (another system) which, at times, is located within a hospital (another system) that exists within neighborhood, regional, state, and national systems. The person interacts with a community system, a system of laws, a system of health insurance, a traffic system, a food production and delivery system, and many others. If a patient asks a physician to help them die because their air pollution-induced respiratory disease has worsened, other actors and systems may interact—including the physician's licensure system, the hospital's bioethics system, and the patient's family system. Because each party and each system is nested within other systems, all of which are constantly evolving and interacting, a single actor cannot be fully understood without considering the systems with which the actor is engaged.¹⁰³ The accepted bioethics model, however, focuses primarily on activities within the four corners of the health system alone, without considering the other systems to which it is intrinsically linked.

3. Emergence

Another characteristic that defines complex systems is emergence, which is the sudden appearance of new phenomena due to the interactions of agents within a complex system.¹⁰⁴ For

100. Mary W. Chaffee & Margaret M. McNeill, *A Model of Nursing as Complex Adaptive System*, 55 *NURSING OUTLOOK* 232, 232–33 (2007).

101. *Id.* at 233.

102. *Id.*

103. *Id.* at 234.

104. *Id.* at 235.

example, if a medical researcher within a hospital attempted to clone a human, the hospital would likely establish new rules to regulate the practice, and the state legislature would address the change. Cloning advocates and special interest groups might spring into action to influence the state legislature, the media, and other citizens. These behaviors all emerged due to interactions among the systems.

4. Co-evolution

In a complex adaptive system, a system does not evolve independently from its environment and the larger system in which it is nested—rather, the systems co-evolve.¹⁰⁵ Potter's view of bioethics reflects this concept by identifying the relationships among humans, human health, and the environment, and by considering how they influence each other.

C. Biocentrism and Bioethics

Potter's broader view of bioethics is also aligned with the concept of biocentrism, which places humans, biologically and morally, in nature and suggests that both individual creatures and ecosystems have inherent moral worth.¹⁰⁶ Biocentrism highlights the complex relationships that connect humans to other species and to the environment essential for human survival.¹⁰⁷

Conversely, anthropocentrism proposes that only human beings or human traits (like happiness, love, or goodwill) have intrinsic moral value and that all other species and the environment are only of value when meeting human needs.¹⁰⁸ A view of bioethics that fails to reflect how the health system itself affects the natural environment can be said to be anthropocentric.

105. *Id.* at 233.

106. Pierce, *supra* note 88, at 6.

107. *Id.*

108. RESNIK, *supra* note 86, at 57.

VI.

A BROADER VIEW OF BIOETHICS IN PRACTICE

If bioethics has the long-term goal of survival of humankind, it should take a broad view, relating medical concerns to social and environmental issues.¹⁰⁹

—Henk ten Have

This Note argues that a broader conceptual model of bioethics is required to reflect the complexities, relationships, and extent of contemporary health issues. If a narrow definition continues to prevail, bioethical analysis will be inadequate and will fail to address critical issues.

A. *Expanding Bioethics Practice*

If Potter's view of bioethics were adopted in lieu of the Georgetown perspective, and environmental issues were placed on bioethicists' agendas, bioethicists could:

Raise the awareness of health care leaders about how their decisions can impact the environment and climate change;

Encourage health facilities to improve energy efficiency, promote telemedicine, and support mass transit use to reduce their contribution to global warming;

Debate environmental issues that arise outside the health sector including disaster preparedness, land use, and policies that influence pollution;

Examine moral, theological, and legal foundations of health and environmental policy where conflicts involve human health and environmental protection.¹¹⁰

B. *Expanding Bioethical Tools*

1. Principlism in Bioethics

Bioethics as espoused by Georgetown has become dominated by four standard principles (autonomy, non-maleficence, beneficence, and justice) that form a framework for moral

109. ten Have, *supra* note 10, at 75.

110. Resnik, *supra* note 4, at 2.

reasoning and provide bioethicists with a set of useful tools.¹¹¹ First, autonomy is the ability of an individual to act or make choices unconstrained by others.¹¹² Second, non-maleficence is the principle that one has a duty to not inflict harm on others or subject them to the risk of harm.¹¹³ Third, beneficence is the principle that individuals have a duty to help others by doing what is best for the other¹¹⁴ Justice, the fourth principle, requires that benefits and burdens are equitably distributed.¹¹⁵ These traditional principles have been challenged by virtue ethics and casuistry,¹¹⁶ but continue to be defended as a good approach.¹¹⁷

Bioethicist Jessica Pierce argues that the four traditional principles of bioethics are not adequate in a Potter-conceived view of bioethics which includes the natural environment.¹¹⁸ Within this broader view, additional principles such as sustainability, balance, adequacy, and diversity may need to be added to the traditional ones.¹¹⁹ Henk ten Have asserts that while contemporary bioethics is focused on empowering individuals in the context of science and technology, this discourse should go beyond the individual perspective and address human vulnerability.¹²⁰ Justice, however, would remain an important principle in bioethical deliberations because health risks due to environmental influences are often unequally distributed in populations.¹²¹

111. Jonsen, *supra* note 22, at 11.

112. BARRY R. FURROW, ET AL., *BIOETHICS: HEALTH CARE LAW AND ETHICS* 13 (7th ed. 2013).

113. *Id.* at 13.

114. *Id.*

115. *Id.*

116. *Id.* at 14–15.

117. Raanan Gillon, *Defending the Four Principles Approach as a Good Basis for Good Medical Practice and Therefore for Good Medical Ethics*, 41 *J. MED. ETHICS* 111, 111 (2015).

118. Pierce, *supra* note 1.

119. *Id.*

120. Henk ten Have, *Respect for Human Vulnerability: The Emergence of a New Principle in Bioethics*, 12 *BIOETHICAL INQUIRY* 395, 405–406 (2015).

121. RESNIK, *supra* note 86, at 202.

C. *Applying Potter's Bioethics Definition*

Examining examples of contemporary environmentally-linked health problems through the lens of Van Rensselaer Potter demonstrates the value of—and need for—his broader model of bioethics.

1. Air Pollution

The World Health Organization reported that about seven million people died worldwide in 2012 as a result of exposure to air pollution.¹²² This finding doubles previous estimates and confirms that air pollution is the single largest environmental health risk to humankind.¹²³ This issue exemplifies Potter's broader view of bioethics: air pollution, a human-caused harm, has measurable impacts on human health, as well as on the health system and its resources. Thus, it follows that ethical issues—like pollution-induced disease—cannot be adequately analyzed without employing a Potterian view of bioethics.

To refer to a specific example, a patient with worsening chronic obstructive pulmonary disease may be admitted to an intensive care unit with acute shortness of breath caused by high levels of smog in an urban area. If that patient must be intubated and mechanically ventilated because he cannot breathe adequately on his own, he may indicate he wants no more “extraordinary measures.” Because the trigger of the patient's illness is anthropogenic air pollution, a traditional bioethics consultation that focuses purely on the medical issues facing the patient, rather than the environmental roots of the patient's illness, would not adequately address the ethical issues surrounding the level of pollution in the patient's geographic area.

2. The Impact of the Health Sector

Dr. Peter Whitehouse, a colleague of Van Rensselaer Potter, argued that health systems and bioethicists should examine the

122. *7 Million Premature Deaths Annually Linked to Air Pollution*, WORLD HEALTH ORG. (Mar. 25, 2014), <http://www.who.int/mediacentre/news/releases/2014/air-pollution/en> [https://perma.cc/8LL6-PWET].

123. *Id.*

impact of health care institutions.”¹²⁴ While meeting the needs of the communities they serve, hospitals and related health facilities can have a negative environmental impact.¹²⁵ Specific environmental problems that result from the work of caring for patients include the following:

Medical-waste incinerators are a significant source of mercury, dioxins, and other toxic substances.

The health industry uses large quantities of toxic cleaners, pesticides, and sterilants that can affect human health.¹²⁶

The health sector has an enormous environmental footprint, generates more than two million tons of waste annually (much of it toxic), and produces almost 10 percent of U.S. carbon-dioxide emissions.¹²⁷

It is well established that current practices in the health care system harm the environment and can affect patients’ and workers’ poor health.¹²⁸ The ethical issues associated with the environmental impacts of the health sector fit well under Potter’s conception of bioethics but not under the Georgetown view.

VII.

CONCLUSION

An enduring environmental ethic will aim to preserve not only the health and freedom of our species, but access to the world in which the human spirit was born.¹²⁹

—Edward O. Wilson

It is time to adopt Potter’s global view of bioethics, which incorporates environmental influences on human health. The

124. Whitehouse, *supra* note 11, at W29.

125. Nancy J. Larson, *Caring for the Health of the Community Means Caring for the Health of the Environment*, 11 AM. MED. ASS’N J. ETHICS, 461, 461 (2009).

126. *Id.*

127. *Driving Systemic Improvements in Environmental and Human Health Via a Green Hospital Movement*, ROBERT WOOD JOHNSON FOUNDATION, <http://www.rwjf.org/en/library/grants/2008/02/driving-systemic-improvements-in-environmental-and-human-health.html> [https://perma.cc/4Y4M-5LC8] (last visited Mar. 26, 2016).

128. *Id.*

129. EDWARD O. WILSON, *THE DIVERSITY OF LIFE* 351 (1992).

narrow Georgetown view encompasses an important, but limited, aspect of bioethics: It could be re-labeled “medical ethics” and considered a sub-set of bioethics. The field of bioethics as a whole should be conceived of more broadly to provide an adequate framework for addressing the emerging challenges in contemporary society. The editors of *The Development of Bioethics in the United States* recognize that bioethics is a “work in progress.”¹³⁰ Now is the time for such progress: specifically, a revision of the current definition of bioethics, which inadequately accounts for the complexities of many ethical issues involving health and health care.

Potter argued that, in addition to the need to merge medical and ecological ethics, bioethics should include agricultural ethics, social ethics, organizational ethics, and religious ethics.¹³¹ He noted that world religions had undertaken the search for a global scope of ethics.¹³² Indeed, Pope Francis, in a 2015 encyclical, described the relentless exploitation and destruction of the environment as one of the principle challenges facing humanity, and identified that the most vulnerable victims are the world’s poorest people.¹³³

Henk ten Have contends, and Potter would likely agree, that:

The limited discourse of contemporary bioethics focuses on empowering individuals in the face of the power of science and technology. Confronted with globalization and facing challenges of poverty, inequality, environmental degradation, hunger, pandemics, and human and organ trafficking, such discourse is no longer sufficient.¹³⁴

130. Jeremy R. Garrett, Fabrice Jotterand, & D. Christopher Ralston, *The Development of Bioethics in the United States: An Introduction*, in *THE DEVELOPMENT OF BIOETHICS IN THE UNITED STATES 2* (Jeremy Garrett, Fabrice Jotterand & D. Christopher Ralston, eds. 2013).

131. ten Have, *supra* note 10, at 79.

132. *Id.*

133. Jim Yardley & Laurie Goodstein, *Pope Francis, in Sweeping Encyclical, Calls for Swift Action on Climate Change*, NY TIMES (June 18, 2015), http://www.nytimes.com/2015/06/19/world/europe/pope-francis-in-sweeping-encyclical-calls-for-swift-action-on-climate-change.html?_r=0 [<https://perma.cc/RRR3-GXRD>].

134. ten Have, *supra* note 120, at 405–06.

Although few contemporary bioethics texts adopt Potter's view of global bioethics, Alastair Campbell does so in *Bioethics: The Basics*.¹³⁵ Campbell agrees that global survival is the greatest challenge facing humans and that bioethics overlaps with environmental ethics because human life on earth will be unsustainable if resource consumption continues at its present rate.¹³⁶ Campbell identifies global warming and population growth as the two gravest threats to human survival.¹³⁷

Though bioethicists do not generally address environmental issues, National Institutes of Health bioethicist David Resnik says this is starting to change.¹³⁸ As evidence of the environment's influence on human health and human health care grows, the historical divide between clinical medicine and environmental protection diminishes.¹³⁹ Interactions between human health and the environment will continue to elicit ethical, social, and legal conflicts by demanding that people choose among competing values.¹⁴⁰ With each new technological breakthrough, like the identification of the human genome, agricultural reengineering, and cloning, ethical challenges arise more quickly than our current "moral machinery" can manage.¹⁴¹ Many issues regarding health and the environment involve managing risks and benefits, social justice, and human rights.¹⁴²

135. ALASTAIR CAMPBELL, *BIOETHICS: THE BASICS* 165 (2013).

136. *Id.*

137. *Id.*

138. Resnik, *supra* note 4, at 1.

139. David B. Resnik & Christopher J. Porter, *Environment and Health, in FROM BIRTH TO DEATH AND BENCH TO CLINIC: THE HASTINGS CENTER BIOETHICS BRIEFING BOOK FOR JOURNALISTS, POLICYMAKERS, AND CAMPAIGNS* (Mary Crowley ed. 2008), <http://www.thehastingscenter.org/Publications/BriefingBook/Detail.aspx?id=2170> [<https://perma.cc/E6YR-YDL7>] (last visited Mar. 26, 2016).

140. *Id.*

141. Nancy Gibbs, *Why Bioethics Matters Today—A Journalist's Perspective, in FROM BIRTH TO DEATH AND BENCH TO CLINIC: THE HASTINGS CENTER BIOETHICS BRIEFING BOOK FOR JOURNALISTS, POLICYMAKERS, AND CAMPAIGNS* (Mary Crowley ed. 2008), <http://www.thehastingscenter.org/Publications/BriefingBook/Detail.aspx?id=2408> [<https://perma.cc/HS2E-XA7W>].

142. Resnik, *supra* note 139.

Potter's global definition of bioethics is better suited to address the scope and complexities of health-related ethical issues today and should replace the narrow Georgetown view that currently dominates.