From the Editors

Lord Kelvin said about the future of physics at the end of the 19th century that all that was left for the 20th century was to work things out to the next decimal point! He did not foresee relativity theory, quantum mechanics, subatomic particles, field theory, and the splitting of the atom that have virtually defined our current century. So gazing into the crystal ball is a dangerous business, especially in print. We will add our perceptions to the increasing numbers of ethicists who have taken to summarizing the achievements of the past 25 to 30 years, and projecting those still to come.[1,2] As we move toward the 21st century, some bioethics issues will be leftovers from our present debates, others will emerge from foreseen dilemmas, and still others will arise without the benefit of foresight. They will take us by surprise. We will try to divine some of each.

Leftovers

A first set of issues are those that we are presently tackling, but on which we as yet have not reached consensus. Perhaps some are, in principle, irreconcilable debates, like those about abortion and euthanasia.[3] But others will lead to some resolution and a workable, ethically defensible social policy. Among the latter would be determining the role of the family in decisions patients make, and being more sensitive to the fact that most persons exist within these units that can be seen as value systems in their own right.[4] Still another resolvable issue will be the duties of physicians in managed care environments to both patients and to the parties underwriting the care provided. This is still a difficult problem at present, since managed care, particularly in full capitation models, would introduce direct and forceful self-interest between the patient and the physician, thus violating the traditional duty to act in the best interest of the patient.[5]

There is a growing backlash to secular bioethics occurring today, and it will continue to grow. It is found in the creation of a new journal devoted to theologically recovering the sources of bioethics,[6] and religious bioethics institutes that are now focusing on the losses to traditional Hippocratic conceptions of medicine and its duties from the ever-growing entrepreneurial spirit of medicine of the past 50 years.

Actually, this trend toward religious sources of bioethics and of medicine is part of a much broader movement in modern bioethics, one that seeks to capture the particularities of cases and culture.[7] Cultural, religious, even individual diversity is celebrated as a way of critiquing an earlier tendency to rely on principles in bioethics to the neglect of the patient's personal, value, and cultural context. Worldwide there is greater and greater awareness of diversity as well. This trend will continue for some

Cambridge Quarterly of Healthcare Ethics (1997), **6**, 365–369. Printed in the USA.

time. It is an important corrective in bioethics.[8] Yet one wonders if we are overstressing diversity to the detriment of the many human features we hold in common. Is it not our commonalities that will help ground a more international bioethics? A system is needed that recognizes these commonalities, yet respects and cherishes the diversities too.

Further, there will be increasing sophistication about different forms of human life, and our ethical, legal, and political duties to each. It will no longer be possible to urge immediate allegiance to moral claims for facts like "Life begins with conception." Instead, as is now apparent, scientific research will continue to help us distinguish different phases of human life as distinct forms of its progression and even retrogression, at the first of it and at the last. These stages, then, will require different moral obligations and quite a wide range of political duties. Already we can distinguish blastocysts, zygotes, pre-embryos to 14 days, embryos, fetuses, infants, children, teens, adults, the retarded, the elderly, the very old, the neurologically impaired (e.g., permanent vegetative state, permanent coma, advanced Alzheimer's), the brain dead, the cadaver. Each form behaves differently, grows differently, has different needs, some more than others. Each form of human life is due respect, but the specific qualities of that respect are currently being developed in our discussions and will continue to be so for many years to come.

Forseeable Issues

Other bioethical dilemmas will arise from our current issues to challenge the next generation.

Certainly one category of issues will arise from the increasing capacity to develop human organs and tissues from stem-cells in the laboratory, with the aim of harvesting replaceable parts to improve longevity, and of bypassing the need for organ donation entirely. This effort is being made to address the unmet need of sufficient organs for transplantation.

Another issue will revolve around an increasingly elderly population, where quite regularly persons will live to be about 125 years old. Daniel Callahan's argument that there is a "natural lifespan" of about 80 years of age will appear quite wrong.[9] So too will arguments that age should be used as a cutoff for medical and technological intervention. Other criteria will have to be developed, perhaps akin to the "Three strikes and you're out" rule for criminals—that is to say, perhaps outcomes research would support a limited number of interventions, after which the person would no longer receive help for another similar pathological event.

The managed care experiment will also produce a generation of physicians who will be accustomed to balancing the needs of their patients with those of the broader community. Patients, too, will need to accept the limits on their care that such systems require for the common good of all who are covered. In short, Americans will be forced by these delivery systems into thinking about community interests in patterns that up to now they have resisted. Much of the tradition of rugged individualism will be subjected to intense scrutiny and rejected. Patient and physician autonomy will be folded into more communitarian concerns of justice and equality of treatment.

Ironically, this change in consciousness will occur precisely at the time during which the traditional Judeo-Christian assumptions about the value of human life and the Hippocratic assumptions about the primary duty of physicians will continue to collapse under the mounting pressure of the awareness of pluralism and diversity as well as newer delivery systems. However,

'dissent' or 'alternative' medicine will appear in the form of care delivery systems that still subscribe to more traditional views of the healer's ethics and art, and these will perhaps prosper alongside managed healthcare. Government will most surely be involved in protecting the rights of citizens as they move, or are moved, between such systems of care, and, no doubt, in protecting the various systems themselves from encroachments on their corporate conscience or mission, just as governments now intervene to support once-majority, but now minority languages like Gaelic (in Wales) or Frisian (in the Netherlands).

Finally, bioethics will become more and more international.[10] In this process, many cultural assumptions, masquerading as ethical norms, will be exposed and subjected to considerable international debate, much as the American insistence on the primacy of autonomy has been among European bioethicists to date.[11] International discussion moves far beyond the culture-bound conceptualizations of values and the language in which they are couched, however. It exposes the fact that facts themselves are already interpreted by value assumptions, and that methodologies and even the way cases are written up and presented preselect certain value-facts over others, and to a large extent, predetermine the outcome of the analysis.

International bioethics will have to focus on establishing human rights in healthcare around the world. In so doing, a human-rights-based bioethics will increasingly predominate over other forms, especially in light of human protection concerns about delivery systems already noted. A human rights basis of international bioethics, in turn, may require rediscovery of the natural law ethic, since it would presuppose some transcultural principles of good and evil.

The Unforeseen

How to write about this category of issues? Perhaps we should think entirely in the realm of fancy.

First, we predict that many specialist physicians will be replaced by machines, computers, and robots for the most part. Primary care would take place by diagnostic computer assessments. Currently these supplement the human interaction in medicine in wellness centers. Advanced neurosurgical techniques already employ robots directed by the surgeon from a computer. In the next century artificial body parts will be widely used as well. The ethical and philosophical debates about this usage, and about its implication for the body and the nature of the human person, also will focus on whether a machine can heal a person. This prediction should also include the procreation and use of genetically engineered animal and human body parts for transplantation.

Second, the moral method of having children will be through *in vitro* fertilization after 50 to 100 genetic tests and some germ-line therapies help select the healthiest embryos for implantation. Germ-line therapy will no doubt cease to be the bugaboo it now appears to be since we will gain the complex knowledge of how genetic changes in one area of the genome affect other areas. Perhaps even more importantly, we will learn techniques to reverse earlier interventions if they prove to be detrimental. Sterilized persons would have to apply to their local frozen sperm and egg bank for the privilege of having a child, after demonstrating that they are truly capable of parenting and have sufficient economic resources not to be a burden on the rest of society. Only then would the government cover the cost of the offspring's healthcare. Enhancements will be selectable for the aspiring couple or singles. So too will be negative

germ-line interventions that will eradicate the genetic basis of diseases. Debates will focus on using this power to create different forms of human life, or selecting, say, some defective gametes on purpose, e.g., for a dwarf couple, or, if there truly is a gay gene, for producing a gay offspring, and the like.

Primary care physicians will largely focus on genetic counseling and environmental health. This will reestablish a profoundly personal role for doctors, in contrast to the extensive use of computers and robots, since they would help organize a person's life, job choices, choices about children, and the like. Debates will focus on the power of the state that allies itself with medical technology for socially acceptable activity, contrasting this alliance with the earlier one between the German state under the Nazis and the biological and physical sciences of that time.

Third, we may produce a generation of human beings that will not have to die, except by either accident or choice. Either replaceable organic or robotic body parts, including computer chips that replace stroke-damaged brain cells as a "bridge" before new cells are generated and implanted, will be so commonplace that persons will not have to die. The old philosophical assumptions about being and nothingness, about humans being human precisely because they are aware of their own mortality, will be replaced by an entirely different anthropology (like that of bionic persons) and ontology (like existence and choice). The euthanasia debates of the 20th and early 21st centuries will be transcended: of course one would have a right to die and could choose to die! We will have to make such a choice; otherwise we would live on indefinitely and increasingly be the subject of more extensive replacement parts.[12]

Conclusion

We have tried to project the bioethics issues of the next century. Hopefully no one will resurrect this article and make fun of us a hundred years from now. Fortunately for us, we have more than enough work in store to develop morally responsible and defensible actions in light of constant developments in medicine and environmental sciences. There is so much of the present for which to take responsibility that we only once in a while need to glance to the future and lift our eyes in wonder.

Notes

1. This editorial is based on: Thomasma DC. Fact and fantasy: bioethics in the 21st century. *San Fransisco Medicine* 1996;69(1):28–29.
2. See especially: Pellegrino ED. The metamorphosis of medical ethics: a 30-year perspective. *JAMA* 1993;269:1158–63: Reich WT. Revisiting the launching of the Kennedy Institute: re-visioning the origins of bioethics. *Kennedy Institute of Ethics Journal* 1996;6(4):323–7; In search of the good society: the work of Daniel Callahan (special issue). *Hastings Center Report* 1996;26(6).
3. The newest volley in the euthanasia debate has been fired by Hendin H. *Seduced by Death: Doctors, Patients, and the Dutch Cure.* New York: WW Norton and Co., 1997. Some of the editors and authors of this journal have interviewed physicians, ethicists, theologians, policymakers, and families in the Netherlands about the euthanasia debate, and have produced a book manuscript, "Asking to Die: Inside the Dutch Debate about Euthanasia," submitted for review at Kluwer Academic Publishers.
4. Nelson HL, Nelson JL. *The Patient in the Family: An Ethics of Medicine and Families.* New York: Routledge, 1995.
5. Thomasma DC. Promisekeeping: an international ethos for healthcare today. *Frontiers of Health Services Management* 1996;13(2): 5–34.
6. Engelhardt HT Jr, Lustig A, Wildes KWM, eds. *Christian Bioethics: Non-Ecumenical Studies in Medical Morality.* Swets and Zeitlinger Publishers.
7. Good examples are: Veatch RM. *Cross Cultural Perspectives in Medical Ethics: Readings.* Boston: Jones and Bartlett, 1989; Pellegrino

ED, Flack HE, eds. *African-American Perspectives on Biomedical Ethics.* Washington (DC): Georgetown University Press, 1992; and Dula A, Goering S, eds. *"It Just Ain't Fair": The Ethics of Health Care for African Americans.* Westport (CT): Praeger, 1994. Hoshino K, ed. *Japanese and Western Bioethics: Studies in Moral Diversity. Philosophy and Medicine,* Vol. 54. Dordrecht/Boston: Kluwer Academic Publishers Group, 1997:243.

8. See the articles in the special section of this issue for examples.
9. Callahan D, ter Meulen R, Topinkova E, eds. *A World Growing Old: The Coming Health Care Challenge.* Washington (DC): Georgetown University Press, 1995.
10. See Brody B. Research ethics: international perspectives; in this issue.
11. Thomasma D. Beyond autonomy to the person coping with illness. *Cambridge Quarterly of Healthcare Ethics* 1995;4(1):12–22. Also note the critique of American bioethics by Solomon Benatar of South Africa, this issue, pp. 397–415.
12. See Thomasma D. Comparison of goals of medicine and society. *Contemporary Philosophy* 1981;8:8–10, where I postulate the existence of "Grimes Posnovich" who is actually an artificial lung machine with a brain and a speaking membrane.