The extraordinary progress of biomedical sciences and medical technology during the last three decades and its application in medical practice confront our societies with new ethical dilemmas. The numbers of articles in daily and professional journals bear witness to the importance of the subject and society's preoccupation with it. The terms “medical ethics,” “bioethics” and “health policy ethics” appear more and more often—and usually in confusing contexts. Before going further, it may be useful to provide some definitions.

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Ethics is a set of principles of right conduct, such as those governing the actions of an individual or of a professional group, or the philosophy underlying such principles.

Medical ethics deals with those ethical principles that govern professional conduct in medicine. Medical ethics implies obligations of the physician toward the patient as well as some obligations towards other physicians.

Bioethics is the term used to distinguish traditional medical ethics from ethical issues that arise from recent progress in biology and medicine.

Health policy ethics concerns ethical issues relevant to the organizing, financing and delivering of health care services.

Medical ethics

The central role of ethics in the practice of medicine cannot be too highly rated. Medicine presupposes certain fundamental values such as the preservation of life and the relief of suffering. These values distinguish medicine from other sciences and imply some special responsibilities, particularly for the physician and other members of the health professions.

The most important obligations of the physician toward the patient are fidelity to the patient's interest, truth-telling of physicians and confidentiality of patient information. In a physician-patient relationship where there are emotional and physical intimacies, patients often entrust their bodies and sometimes even their lives to physicians, and therefore trust must exist. Medical ethics provides the basis for this trust. To assure patients that their interests are the most important, to promise to keep their confidences, and to deal honestly with them are fundamental values of medicine to which physicians must adhere.

Ethical problems arise when these values conflict with one another or with other interests. For example, there may be conflict between fidelity to the patient's best interest and the physician's financial interests, or conflict between the obligation to tell the truth and the obligation to protect the patient's well-being—in a case where the physician fears that an honest description of a hopeless prognosis would seriously upset the patient.

Because of the physicians' central role as decision-makers about the health and welfare of their patients, the dilemmas they face are the primary
of medical ethics. This role of decision-maker has created a degree of paternalism, in that the physicians are obligated by this relationship to their patients to take the responsibility for decision-making. The patient expects his physician to possess both technical knowledge and ethical wisdom.

**Bioethics**

Recent progress in biomedical science, the resulting development of new medical technology and the growing possibility of its applications provoke a certain anxiety. In order to explain society's concern it may be useful to describe briefly the methods of biomedical experimental research and their application. Investigation begins with the construction of hypotheses which are tested in a laboratory and with experimental animals. For the findings to be clinically useful, experiments must be done on human subjects and, even when carefully designed, such research entails some risk to the subjects. This risk is justified not by any personal benefit to the researcher or the institution at which research is conducted, but by its benefit to the human subject involved, its potential contribution to human knowledge, to the relief of suffering or to the prolongation of life. Long-term, the benefits are likely to be collective.

In the remote Tunisian countryside or in a crowded hospital in Sri Lanka, wherever people gather to talk health, certain fundamental values hold true about the preservation of life and the relief of suffering.
The doctor-patient relationship has always required patients to entrust their bodies and even their lives to the physician. Medical ethics provides the basis for this trust.

Ethics and health

with the appearance of life? Likewise, methods of artificial reproduction offer the possibility of child-bearing to infertile couples. But who are the parents of a child resulting from in vitro fertilisation of the egg taken from Mrs A and sperm from Mr B, implanted into the uterus of Mrs C and then offered to Mr D and Mrs E upon birth?

The sperm and the ovum, and the fertilised ovum resulting from their in vitro union, can be manipulated to a hitherto unknown extent. Artificial insemination by donor other than the husband is an established procedure; a husband's sperm can be frozen and stored for future use, even after his death; similarly, the fertilised ovum can be frozen and stored for later use; and women "lease" their wombs to carry other women's embryos. Genetic engineering is already capable of changing some inherited characteristics, and genetic selection is feasible, based on prenatal diagnosis.

Research at present under way on molecular genetics, and particularly on human genome mapping and sequencing (as described in the December 1988 issue of World Health), presages a new scientific era, perhaps a revolution, in the medicine of the 21st century. It opens up the possibility of changing the ways in which certain genes function in order to prevent or to treat many diseases and disorders. The particular dilemmas raised by genetic screening and counselling are: the ownership of genetic information, and the advantages and pitfalls associated with genetic counselling and engineering.

Who owns genetic information? The traditional moral viewpoint has been that professional secrecy is in both the patient's and the doctor's interests. But today, ought we not to be concerned to make genetic information available to the relatives (or the potential spouse) of the patient? If the health and well-being of relatives or of future offspring are at issue, does the obligation to keep a secret then turn into an obligation to tell? It now seems that the totality of one's physical existence exceeds the limits of one's body, and consequently the traditional right to secrecy may turn into a duty to share information with the family or even with others in society.

The burden of knowledge

There is also a right not to know. For one reason, false-positive test results give inaccurate predictions. Then, some people are unable to cope with the burden of knowledge. Thirdly, information obtained from predictive testing can be misused. A fundamental principle of patient autonomy would
seem to be that it is the basic right of the person to be tested or not to be tested, and to choose to be informed fully or only in part. Here is an area of interaction between the developments in biomedical science, ethics and health policy-making that cries out for further elaboration.

What are the advantages and pitfalls of genetic screening and engineering? Both geneticists and the public must know clearly that prenatal diagnosis, as one of the options in genetic counseling, does not lead to a “handicap-free” society; and that, even when used to the maximum, there would not be a significant reduction in the percentage of congenital handicaps and diseases.

Predictive screening is warranted only if a free and informed decision is possible, and if adequate facilities are available for long-term follow-up of those identified as disease-gene carriers at an early age. Another reason for concern is the risk of social discrimination by employers, insurance companies and so on against someone known to have some genetic predisposition.

These and similar questions seem to go beyond the terms of reference of the medical profession alone. Can we consider that the neurologist or the cardiologist is the only person to decide who is alive and who is dead? Are the geneticists, obstetricians and embryologists the only people to answer the questions about the moral status of human germinal material, eggs, sperm and embryos, whether in the human body, in the laboratory test tube or even frozen in laboratory containers?

Society is largely unprepared for, and unconcerned about, such rapid scientific and technological developments. The ethical issues to which they give rise need to be examined thoroughly in the light of social norms, legal codes and human values.

**Health policy ethics**

The ways in which health policy, ethics and human values interrelate are described by the American physician and philosopher, Edmund Pellegrino: “The health policy of a nation or a community is its strategy for controlling and optimising the social uses of its medical knowledge and resources. Human values are the guides and justifications that people use for choosing the goals, priorities and means that make up that strategy. Ethics acts as the bridge between health policy and values. It examines the moral validity of the choices that must be made, and seeks to resolve conflicts between values which inevitably occur in making those choices. Ethics, therefore, orders human choices in accordance with normative principles.”

Many, perhaps most, health policy decisions raise ethical questions. Policies having to do with who shall receive health care, what resources should be allocated, what criteria should be used in setting priorities, what constitutes an acceptable form of health care, when should health care begin or end, and even the matter of who should be involved in making policy decisions, all have inherent ethical components. Different national, cultural and religious traditions yield different ethical value-systems, and their interaction with health policymakers will therefore vary from country to country.

Three general considerations should motivate health policies: First, to attempt to control the social and economic impact of the unrestrained use of advanced medical technology in treating individual patients; second, to achieve a more equitable distribution of the benefits of medical knowledge; and third, to use the medical knowledge in an anticipatory way for the collective good of present and future generations.

Let us try to identify the levels of moral responsibility that physicians
The poor man’s medicine: a street-vendor offers drugs in Nepal. One goal of health policies should be to achieve a more equitable distribution of the benefits of medical knowledge.

should exercise in making the judgments and choices essential to policy formation and operation:

The physician as the patient's advocate. The physician who offers to treat or help a sick person is bonded in a special way with the patient. He (or she) invites the patient's trust that he will be competent and will place that competence at the patient's disposal.

The physician as technical expert. When not locked into a trust relation with a particular patient, the physician is obliged to participate in policy formulation as a person with the technical knowledge which policy-makers need to make rational choices among alternatives. This is an obligation owed to society since that knowledge is not proprietary.

The physician as citizen. The duty to act as a technical witness in policy formation does not exempt the physician from obligations as a citizen. Thus, he must favour policies that are morally sound, and oppose those that are immoral.

The physician implementing health policies. Sooner or later, health policies must be applied to the care of individual patients. It is here that the physician faces the most difficult moral conflicts and the most direct challenge to the traditional ethic of beneficence.

The physician as moral agent. The physician, like any other person, is morally accountable and therefore cannot carry out a health policy—for example, mandatory sterilisation of carriers of genetic disorders, or refusal of care because of inability to pay—that he considers fundamentally immoral.

The complexity of these role relationships illustrates the urgent need for careful reconstruction of professional ethics so as to address the new dilemmas and conflicts that medical technology and evolving health policies introduce into the physician's role. Today, it is possible, and indeed necessary, to examine these questions not only as the ethics of care but much more extensively as the ethics of health policy and biotechnology as a whole. The intention is not to under-value moral and ethical aspects at the individual level, but rather to view them within a wider frame of reference.