

# EDITORS' INTRODUCTION

Health care technology, those objects and techniques used in health care practice, is so important and customary today, it is difficult to realize that not long ago physicians had few beneficial devices, drugs, or procedures to offer patients. It was only in the nineteenth century that advances in diagnosis, marked by the invention of the stethoscope, and in therapy, denoted by the introduction of ether anesthesia, inaugurated the era of modern medicine. Over the century and a half that followed, we developed an extraordinary armory of diagnostic and therapeutic tools, which have significantly improved life expectancy and raised the quality of life for countless persons all over the world. These advances also have created ethical, economic, organizational, and political problems concerning their appropriate use and distribution.

In the second half of the twentieth century, we began to glimpse the weighty ethical issues generated by technology concerning both social policy and the personal interactions between health care providers and patients. They began to emerge in the 1960s. The enhanced abilities to preserve the lives of those whose bodies suffered physiologic catastrophes, which before meant certain and rapid death, also created a host of deeply troubling questions about how intensively and long to apply the new therapeutics in the maintenance of life. These problems fostered basic changes in clinical criteria governing medical practices, such as altering the definition of death.

A gap also has grown between what technology promises and what society can afford. Technologic benefits stimulate an increased demand for health care. The complexity of the technologies used increases the number of staff needed to properly apply them. The invention of technologies grows at a rapid rate. The gradual cost increase in health care has added perplexity to the ethical issues of how best to apply beneficial technologic resources.

Most countries now are facing the problem of allocating scarce resources in health care. They need to make better use of existing technology by seeking to get effective ones applied and ineffective ones removed. It is about this problem that the field of technology assessment has grown. Prior to the 1970s, innovations in health care were evaluated basically from the viewpoints of whether they were safe to use on patients and effective against the illness at which they were directed. In the 1970s a new view of the scope of the evaluation process emerged that took account of not only safety and effectiveness, but also of social, ethical, economic, and legal impacts of technology. This outlook also broadened the audience toward which assessments should be directed to include not only clinical providers but also government, insurance, and industrial decision makers. Methodologies to do assessment needed to be broadened, as did mechanisms to expedite getting the information generated by the assessments into the hands of those who could benefit from them.

Alongside those events, the growth of technology has had a significant effect on issues such as the way in which health services are organized, the specialization of practice, and the roles and status of health care providers. For example, the need to bring patients, practitioners and technology together created at the turn of the twentieth century a dramatic growth in the number and importance of the hospital. Given the modern ability to send all sorts of medical data over distance and the reduction in the size of equipment, the possibilities for organizing more health services outside of the hospital becomes possible. How to deal with this prospect is a significant matter for us.

The continuous introduction of technology has of course created new specialties. Now a total of about 200 recognized specializations exist within the fields of medicine, nursing, and the allied health professions, and all, ultimately, must come together to meet the needs of a patient. Each of these specialties is itself subject to the benefits and problems of technology that is rapidly emerging. Increasingly, to the traditional relationship between patients and health care providers, technology is being added and introducing a third dimension to this association.

To bring these social, economic, clinical, and ethical matters together in a systematic way throughout the world, individual researchers, governments, professions, and other private institutions are involved in technology assessment. Until now, there was no international forum that examined the place, use, effects of health care technology, and provided a channel of communication among the diverse and world-wide audience of scholars, practitioners, policymakers, and administrators concerned with this issue. This journal is being published to meet this need and to nurture the discipline of technology assessment. For our capacity to create technology must be linked to a determination to assess its effects, lest our creativity be turned against us and fail to serve as a source of benefit and progress.

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# TECHNOLOGY AND HEALTH CARE FOR THE ELDERLY

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