

The Impact of Biomedical Research on Health Care¹

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Health care today is one of the most complex of human endeavors. It involves all kinds of practitioners, diverse in their organization and modes of delivery, facilities of special design, and a constantly proliferating array of instruments, techniques, devices, and therapies. At the base of it all is biomedical research.

Medicine is still empirical enough; without research it would be medieval. We might still be relying on leeches and the purge, be resigned to periodic outbreaks of devastating plagues, and have to endure calamity with uncontrolled anxiety and pain.

The purpose of biomedical research is to improve the well-being of man through greater understanding of the nature of life. At the basic level, knowledge is generated about the functioning of biological systems and about the processes of growth, development, and decay. Resynthesis and development of this information leads to ways of understanding, preventing, treating, and curing disease.

Biomedical knowledge, like scientific knowledge generally, has been accumulating at an exponential rate, as reflected in the output of scientific literature. One sampling of biomedical

cal publications suggests an average annual increase in scientific papers of between 4 and 5% for each year from 1965 to 1973 (1).

It will take years to assess the impact of this avalanche of new knowledge, if indeed we can ever accurately measure it. In fact, one of our important tasks is to sharpen the tools for such measurement. Once gained, knowledge is added to a pool from which it can be drawn forever, and future applications cannot be foretold.

The results of biomedical research seem usually designed for the professional who delivers health care. They sharpen his skills and increase his armamentarium. Often research results become translated into social action, such as mass fluoridation, mandatory sanitation practices, and pollution control. Sometimes the individual can directly participate in research application, by changes in life style, for example, in improving nutrition and stopping smoking. When biomedical knowledge becomes a part of daily living, we tend to forget its origins in the processes of discovery and development.

Some claim can be made, of course, that the disappearance of smallpox should also mean an end to amortizing our debt to William

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