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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND 20205

MAY 28 1980

Dr. Joshua Lederberg
President, The Rockefeller University
New York, N.Y. 10021

Dear Josh:

In your letter of April 16, you asked what, since 1950, "have been the most significant innovations in health and medical practice, judged by their actual impact on health outcomes for significant numbers of U. S. citizens?" You list five items and I would agree with their inclusion on such a list, i.e.:

- Management of hypertension
- Management of fluid volume, electrolytes and pH in acute illness
- Vaccines
- Oral contraceptives
- Psychotropic medications

I would also include:

- Antibiotics
- Improved blood banking
- Renal dialysis and transplants
- Radioimmunoassays
- Open-heart surgery

You ask about secondary references. I am aware of the following publications which contain a similar list:

- Comroe and Dripps, Science 192, 105, 1976 (copy enclosed, attachment A) considered "clinical advances since the early 1940's that have been directly responsible for diagnosing, preventing, or curing cardiovascular or pulmonary disease, stopping its progression, decreasing suffering, or prolonging useful life." Their list is given in Table I of the paper. Further elucidation is found in, "The Top Ten Clinical Advances in Cardiovascular-Pulmonary Medicine and Surgery 1945-1975" by Comroe and Dripps, DHEW Publication No. NIH-78-1521, and in "Retrospectroscope-Insights Into Medical Discovery" by Comroe, Van Gehr Press, 1978.

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- The President's Biomedical Research Panel, in their report of April 30, 1976, included in Appendix B an "Analysis of Selected Biomedical Research Programs." The Panel selected 18 biomedical advances "to serve as models to characterize the path of biomedical research." The 18 advances are listed in attachment B. A follow up to this study examining 25 advances is found in a report, "Further Analyses of the Characteristics of Research Resulting in Clinical Advances From Inception to Clinical Usage" prepared by R. I. Leininger and G. W. Levy of Battelle for NIH on February 28, 1977, under Contract No. N01-QD-6-2125. The 25 items are found in attachment C.
- "Medical items listed as innovations by selected NIH professionals" appears in a chapter by L. M. Bernstein et al., which I include as attachment D.

I hope this information is of use to you.

Sincerely yours,



Donald S. Fredrickson, M.D.
Director

Enclosures