



In our zeal to control health care costs, we must be steadfast in our support of basic and applied medical research

Successes in disease eradication: lessons for the future

FEW SUCCESSES in the field of public health could be more gratifying than the total eradication of a dread disease. When Edward Jenner discovered that vaccination with cowpox (vaccinia) confers resistance against smallpox, he could not have known that his finding would lead to the extinction of the smallpox virus, with the exception of a small supply kept under tight control in a few laboratories for future possible uses. Although the vaccine played a key role in getting rid of the disease, a massive organizational effort was required for the final victory, and nearly 200 years passed before this effort was mounted.

■ SUCCESS IN ERADICATING POLIOMYELITIS AND DRACUNCULOSIS

In his "Highlights from Medical Grand Rounds" presentation, summarized in this issue of the *Journal*, Hopkins (who participated in the eradication of smallpox) describes worldwide efforts to eliminate two more diseases, namely poliomyelitis and guinea worm infestation (dracunculosis). Success is near, and both have been confined to small areas of

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the world. This work is little noted in the United States because neither disease now presents a direct threat here, although some of us are old enough to remember the rows of "iron lungs" wheezing away in the polio wards of 50 years ago. Nonetheless, the total eradication of polio would have enormous immediate economic importance here. We still vaccinate every child against polio because there are parts of the world in which exposure remains a possibility, and people travel. If there were no possibility of exposure, the cost

of prevention could be safely avoided, as Hopkins points out.

■ THE FUTURE OF DISEASE ERADICATION

The possibility that other diseases, both infectious and noninfectious, might be eliminated within our lifetime is growing, as the field of molecular biology matures. Diseases such as rheumatoid arthritis, diabetes mellitus, and Alzheimer's disease, to name just a few, have a genetic component that may be amenable to modification. If such diseases could be prevented and eliminated, there would be untold amelioration of human suffering, and the effects on the health care delivery system would be significant. We could begin talking about definitive rather than second- or third-line treatment for many diseases once thought to be incurable. Similarly, if coronary arteriosclerosis could be prevented, the effects on the current health care infrastructure, particularly inpatient surgical units, would be dramatic.

All this points up the fact that, in our zeal to control health care costs, we must be steadfast in our support of basic and applied medical research. We must develop tomorrow's tools — analogous to Jenner's vaccination of the past — and we must marshal the resources to apply them once they are within our grasp. We cannot afford the human or economic costs of failing to do this.

JOHN D. CLOUGH, M.D.
Editor-in-Chief