

# NEW PERSPECTIVES IN PUBLIC HEALTH<sup>1</sup>

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*How has the U.S. health scene changed in the past twenty-five years and how is it likely to change in the years ahead? The author's view, summarized in this article, is that the current era has been one of repetitive crises, participatory democracy, utopian hopes, and over-reliance on money to solve problems—and that perhaps the major question confronting the future of U.S. public health today is whether society can return to or be persuaded to recapture an Age of Reason.*

Perspectives, whether past, present, or future, necessarily rest upon one's perception of images, metaphors, and slogans. Throughout history, major objectives of good and bad leaders had to have names. Man was always challenged or intimidated via the ages of faith, of reason, of anxiety, the Atomic Age, the Age of Pluralism, the Great Society. No President would enter office without a new fanfare and a new banner, often with a committee, fortunately including some of us, forever marching toward Elysium.

I am startled by my courage or recklessness in agreeing to look at the future. Prophecy has its attractions, as well as its temptations. The latter enticed me into tonight's exercise. To traverse it intelligently we should take a hard look first at the present public health, or obversely the disease, scene in the United States.

## The Present Setting

What has happened to the disease situation in the last twenty-five years? Health has certainly not deteriorated in that time, even though vocal protestations regarding inadequacies have increased in decibels. Our concerns today are no longer heavily directed toward the communicable diseases, while alarming recrudescence of so-called children's diseases remind us that the present generation of parents are unaware of the necessity for immunization of their offspring. Their sights are elsewhere.

The enemies on the national stage are now cancer, heart disease, stroke, and accidents. The struggle to restrain and reduce them took two directions—one via money for services and another via research. By any measure, both have received large amounts of dollars.

In 1950, the total expenditure for health care was approximately US\$10 billion. By 1972 it was over \$70, and by 1974 \$110 billion. This year it will exceed \$130 billion. Those with insatiable appetites, who equate more dollars with better health results, estimate that the figure might exceed \$250 billion by the nineteen-eighties.

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Students of such matters naturally ask or should ask What are we getting for these astronomical expenditures? Lewis Thomas, one of these thoughtful observers, has recently succinctly summarized the present state of affairs:

We are left with approximately the same roster of common major diseases which confronted the country in 1950, and, although we have accumulated a formidable body of information about some of them in the intervening time, the accumulation is not yet sufficient to permit either the prevention or the outright cure of any of them....

In general, cardiovascular disease, 39 per cent of total deaths in 1974, lacks any decisive, conclusive technology, with the power to turn off, reverse, or prevent disease....

As to coronary disease, it is believed in some quarters that dietary lipids are an etiologic factor. It is also proposed that lack of exercise, excessive emotional stress, and various usually unstipulated environmental influences are somehow implicated in pathogenesis. The evidence for these beliefs is still inconclusive. In any event, the actual pathologic events which cause the coronary lesions remain unknown....

Cancer (19 per cent of total deaths in 1974): Prevention would be possible for a few types, if exposure to the known environmental carcinogens, e.g., cigarettes, asbestos, and certain industrial chemicals, could be eliminated. But prevention in the sense of eliminating the biological steps involved in the transformation of cells is not yet feasible....

Cerebrovascular diseases (11 per cent of total deaths in 1974): Since no therapy exists for preventing or reversing atherosclerosis, this class of strokes is neither preventable nor reversible.... Therapy is limited to efforts at minimizing the extent of disability. (1)

Thomas continues his assessment to embrace some 80 per cent of all deaths (of which the three types already listed represent some 69 per cent). The conclusion is less than optimistic on what we have to offer for the money, manpower, energy, and Madison Avenue publicity!

On the other hand, Rogers and Blendon (2) feel that "sometimes things get better" on the American health front. They empha-

size that, for the same period examined by Thomas, medical care services have shown remarkable strengthening and expansion. They stress the fact that low-income people increasingly enter the health system. Correspondingly, they acknowledge that getting to medical care is not synonymous with improved health. Access may be a prerequisite to reduced morbidity and mortality, and Rogers and Blendon present some data to show that health statistics confirm the assumption.

General death rates, infant mortality, maternal mortality, and coronary deaths have all declined. The reasons are not clear. Cause and effect, as usual, are not easily discernible, and are frustrating to the precisionist. Per capita costs mount rapidly, while consequent benefits remain murky. Those who blithely look for more and more money tend to ignore the increasing criticism when expenditures rise alarmingly. The public is continually swayed between fear and hope, often with a persuasive irresponsibility by government, voluntary associations, professional practitioners, and marauding consumer activists. The balance of benefit and risk is lost in the shuffle of rhetoric. The pronouncement, by a leader in the U.S. Senate, that every man, woman, and child must be safeguarded against any possible disease is an attractive slogan for a plebiscite, but not much of a guide to scientific decision-making. Confessions of scientific ignorance and uncertainty fall on unsympathetic ears.

A significant case in point is the plaintive question in a recent letters column. The writer asks what can he eat, drink, or breathe when the health officer issues an alert on a day of smog? The justification for the alert is presumably to protect health. Yet ten years after standards for clean air were promulgated, we learn, in May 1977, that "probably the most important ongoing environmental health study in the U.S. today is being conducted at the Harvard

School of Public Health." Dr. James McCarroll, the manager of the Electric Power Research Institute's Health Effects Program, says: "This project is the largest epidemiological study of the health effects of air pollutants on humans in the U.S. today." (3) We used to feel that the verdict in Alice in Wonderland: "Cut off his head first and then try him" was sheer fantasy! Today, it is governmental policy.

Our present era is one of repetitive crises, of participatory democracy, of utopian hopes, and of assumptions that money can buy everything! Strangely, academia, when it was not climbing on the giant bandwagon, was curiously impervious to the necessity for epidemiological verification of real, apparent, or spurious public health claims. As we leave this "Age of Emotion," what about the next twenty-five years?

### The Discernible Future

Perhaps the major question confronting a student of the future of public health is whether society can return to or be persuaded to recapture an Age of Reason. Canny Thomas Jefferson once remarked that "tyranny often springs from virtue." All of us, in our search to rejuvenate the American Dream, have fallen into the habit of preferring the heart to the head. Our goals have been matched by over-promises, in a scientific world which had already provided us with many tools to accomplish many public health purposes. Fully aware that medical care and hospitalization were essential to our lives, we assured the public that their simple multiplication would be our salvation. In the process, we did two things: we dehumanized the individual by the sheer machinery of care and simultaneously converted him into a hypochondriac in search of cures to imaginary ills. The public health worker, in the meantime, continued to preach preventive medi-

cine, with his sermons frequently falling upon deaf ears.

In this milieu, it would be foolhardy to envision a future, disease by disease. The critical killers and debilitators are well-known. The choice of routes for action rests upon logistics for the known, inquiries into the unknown, and determination of an equilibrium between purveyors and recipients. What are some of these probable routes?

#### 1) Research

It is always hazardous to give a high priority to research. The need to know more of the origins of our major threats is clear. Impatient people are always distressed by the suggestion that action based upon ignorance is not only costly, but actually dangerous. The real hope for prevention lies in increased understanding, more than in increased facilities. Sustained pursuit of such understanding is a must for some years to come. This is our real promise.

#### 2) Epidemiology

After years of delay, epidemiologists are beginning to capture an interest and a participation in the validation of disease cause and effect. The shift from the profitable studies of communicable diseases to those of more subtle and long-term manifestations was of long duration. The methodology of epidemiology should be and will be increasingly essential to guiding public policy and the logistics of application. Without it, we shall be both foolish and wasteful.

Some have repeatedly suggested that action without evidence is both old and warranted, as in the prevention of enteric diseases before the discovery of causative organisms. The removal of the Broad Street pump handle and the consequent reduction of water-borne cholera is the example used to illustrate their point. In reality, that

action was a superb example of epidemiologic reasoning—not a demonstration of ignorance and nonreason blessed by success.

### 3) *Human Behavior*

A statement repeated so often it may perhaps be true is that "many of today's health problems are caused by a variety of factors not susceptible to medical solutions." Even if it is partly true, it reflects the feeling that the individual has a major responsibility for the prevention of at least some of his own illness. Excessive smoking, eating, and use of alcohol are the prime candidates involved. Before it is forgotten, personal hygienic practices, or their universal absence, should be added to the list. With all these, it is an over-simplification to suggest that individual responsibility stands alone in this prevention opportunity. Societal attitudes share the field. Further physiological and psychological evidence is required to assure more successful reduction of disease than has so far occurred. The future must also encompass a renewed interest in genetic influences. Today they are diligently buried under the cloud of protection of human rights.

While one may accept with enthusiasm the dictum that much public health advance rests upon public participation, so far such efforts have been less accompanied by parallel responsibilities than by adversary postures. The formula for effective public understanding and consensus still eludes us. Dozens of organizations have escaped contraception to enter the popular game of aggressive demands. One of them opens its request for funds with the statement "When it comes to our health and the health of our families, we've got to insist on the best!" The remainder of four pages of the invitation to join is devoted to an attack on government for delayed action on carcinogens, on industry for concealment of

hazards, and on physicians for "a rip-off of taxpayer dollars to the tune of one billion dollars." Nowhere does the document suggest that its contributors might profit by improved understanding and behavior in possible reduction of disease. The future in this arena lies more in an educational process, so far undisclosed, than in the wringing of hands by professional societies.

### 4) *Industrial Hygiene and Toxicology*

Sixty-seven years ago Alice Hamilton entered, in her words, "a new, unexplored field of American medicine, the field of industrial disease." (4) The next twenty-five years will see an equally new and far more complex area for exploration than even Hamilton encountered in her pioneering days. Some are surprised that industry is now again to be invaded by physician, chemist, biologist, and engineer. This is inevitable when one views the tremendous spectrum of contributions, mostly good and some inevitably bad, for which industry may take credit and responsibility.

The total amount of disease specifically engendered by occupation is small, relative to the totality of disease in the U.S. To the worker it is nonetheless of high significance. Of equal import is the fact that the study of industrial diseases presents an excellent laboratory opportunity, on a small scale, to reveal the behavior of diseases equally hazardous to the public.

The voyage initiated by Alice Hamilton in her first exploration in Illinois in 1910 will be continued and expanded manifold during the next twenty-five years. While lives of workers will be saved, advances in knowledge and in preventive measures will be of even greater service to mankind at large.

Perhaps even more important is the Pandora's Box opened recently by the passage of the Toxic Substances Control Act. This field of regulatory action will

dominate the next decades. Demands will be made on industry's scientific understanding; on the acuity of toxicologists, physicians, epidemiologists, physiologists, and engineers; on the wisdom of regulatory officers; and on an astonishing faith in public understanding. All of us now begin a search for the "product steward or broad-gauged industrial hygienist" who is, of course, in short supply.

The next years offer a hunting ground unsurpassed by any previous period. We have over 1,000 chemical manufacturers, 3,100 allied establishments, and 7,400 chemical processors. Their products are in the tens of thousands. What may we eat, drink, or breathe? is the modern Hamlet's question or the mark of the future!

### 5) *The Environment*

As an old environmentalist, I find it necessary to remind the militants of today that the environment has always been with us and will continue to be in our charge forever. When Von Pettenkoffer was shouted down a century ago for suggesting that the environment posed many threats, he in fact envisioned our future challenges. In the U.S., attention is now focused upon the hazards perhaps created by the ingredients in air, water, and food. Evidence is still meager in fact, but abundant for television and budgetary purposes.

The future will or should offer great opportunities for research to bring some order out of the present chaos of assessing the significance of thousands of new and old organic and inorganic substances. Mr. Cronkite, impatient to await the results of painstaking laboratory and field studies, announced recently that we are confronted by "over 1,000 chemical poisons in water, food, and air"!

The truth in all of this must be determined as rapidly as possible. In the search,

the forces available in the physical, social, biological, chemical, and environmental disciplines must come into play. Parenthetically, it is important to emphasize that when the evidence is in, the correctives must be applied primarily by the engineer.

By way of reassurance as to the future, Dr. John Higginson<sup>3</sup> recently suggested that if we have been eating or drinking something for over 60 years, without demonstrated ill effect, it might be well to let it alone. This dictum, of course, will satisfy few crusaders in the environmental arena.

### 6) *Immunization*

The vista for vaccination is amazingly promising for the next decades. Not only is there a resurgence of application of long-known vaccines, but also revelation in immunology. Vaccines will not eradicate all of man's plagues, but their transcendent values are historically clear. It is only when they have been forgotten, as today, that damage is done. The debilitators and killers are again with us in measles, diphtheria, whooping cough, poliomyelitis, and tetanus. In the next few years they can and must be eliminated. Lessons learned years ago must be revived in planning, management, and field supervision.

Profound expansions in the vaccine field may be reasonably anticipated. These flow not only from the remarkable success with global reduction of smallpox, but also from the amazing developments in microbiology and immunology. The notion that one may vaccinate against malaria, schistosomiasis, and viral infections promises, not a millennium, but certainly another series of life-saving aids. As always, they will be assisted and abetted by familiar and elaborate environmental technologies.

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All of these developments are remarkable research advances in the hundred years since the smallpox vaccine of Dr. Jenner.

### 7) *The World of Implementation*

Sir Ronald Ross (5), almost three-quarters of a century ago, epitomized our major problem forever and anon in these words:

"Pathological inquiry has grown immensely, but the time has come when a number of practical questions . . . should receive more attention from our soldiers of research. . . . Do not think that when you have made your discovery, great or small, you have finished the matter. Medical research is not a mere academic amusement consisting in the publication of elegant articles. . . . The discovery is only half-way up the mountain, and beyond it extends the arduous summit of the practical application."

Today's debates are precursors of tomorrow's issues. With an astonishing amount of scientific knowledge, coupled with an equally amazing amount of money, the U.S. battles to seek actions which will cover all people, all of the time, for all diseases—known and even unknown. Unfortunately, the science of medicine does not easily lend itself, curatively or preventively, to simple logistical implementation. The most that one might foresee is a compound of a reoriented physician, an army of practitioners in allied disciplines, a public militantly desiring everything, and a restraining budget.

The management structure under which to house all this is still on the drafting board. Its architects cannot agree as to all the accoutrements within the projected dwelling. The delusion that all of these problems would be resolved by an edifice called the National Health Insurance Act is getting less enthusiastic support, because the early promises in other countries have brought with them many unresolved difficulties. In predicting this misty future, I take refuge in the precept of the wise oracle

who spoke only in generalities and hopes!

What is reasonably clear for the future is that high motivations will remain with the public and government. Manpower will be expanded, with many old arts retained and new ones added. Money will flow, with added restraint and uncomfortable governmental regulations. Managerial devices will be conjured up to keep the operations from floundering too much. A hint of pessimism pervades this closure, only because, as Professor Winslow remarked years ago, this world of which we speak is "a battlefield, not a nursery."

The emphasis now is on integrating health activities into the total fabric of society, because success in prevention, particularly, lies in finding one's place in the constellation of all the causes of disease. The recent recession experience has already disclosed that long-term unemployment alone takes its toll in increased disease and frank, though temporary, illness (6). The linkage of our performance to the economy of our clients has long been known. We have tended to ignore it, because, like all good union members, we have felt that sustenance for our activities would be lost in the shuffle of budget allocation if jobs competed with vaccines.

Many have always contended that a rise in the standard of living brings health dividends, without the trappings of public health practice. This is partly true and prompts us to look again to see where private enterprise, rather than government, may facilitate reaching desirable goals.

A case in point has recently been reviewed by interested scholars. The history of the rise of McDonald's as a nutritional source cannot be matched by any of our health centers. From a single outlet in Des Plaines, Illinois, the chain has grown, over a period of 20 years, to 4,200 stores worldwide. Of these, the U.S. has 3,700 or one for every 50,000 people. Can we match this managerial accomplishment? I doubt it, but we

should look to this private route for some of our future health coverage machinery! Is there a lesson in the universal distribution of the hamburger on rye?

In this "unperfect world," the most that we can hope for is that "We devote our

limited resources to doing something about the things we know are worth doing, and waste less time on the safely fascinating debates about things that could, perhaps, be skipped entirely without significant harm to the public's health" (7).

SUMMARY

This article briefly summarizes the author's views on how the United States health scene has changed in the last twenty-five years and how it may change in the years ahead.

In the last few decades U.S. public attention has focused less and less on communicable diseases, more and more on cancer, heart disease, stroke, and accidents. Partly on this account, U.S. health budgets have grown enormously, from \$10 billion in 1950 to over \$130 billion in 1977. However, the returns on this tremendous investment are not altogether clear. What is more, public concern—spurred on by government agencies, voluntary associations, professional practitioners, and consumer activists—has tended to run an erratic course. In sum, our present era has been one of repetitive crises, of participatory democracy, of utopian hopes, and of the assumption that money can buy anything.

Therefore, perhaps the major question confronting the future of public health is whether society can return to or be persuaded to recapture an Age of Reason. Since the critical diseases are well-known, the principal choice is between various avenues or approaches promising to take us in this direction. These include:

- *Research:* Since the real hope for prevention lies in increased understanding, sustained pursuit of such understanding is a must for some years to come.

- *Epidemiology:* With attention shifting from communicable diseases toward more subtle and long-term manifestations, epidemiologic methodology should be increasingly essential for guidance of public policy and application of health measures.

- *Human behavior:* Changes in individual and social attitudes can help reduce diseases encouraged by excessive smoking, overeating, misuse of alcohol, poor personal hygiene, etc. One can also accept with enthusiasm the idea

that much public health advancement may depend on public participation.

- *Industrial hygiene and toxicology:* Exploration of the industrial disease field will be continued and expanded manifold during the next twenty-five years. Perhaps even more important, passage of the Toxic Substances Control Act means that this field of regulatory action will dominate the coming decades.

- *The environment:* Attention in the U.S. is now focused upon the hazards perhaps created by the ingredients in air, food, and water. Evidence is still meager in fact, but abundant for television and budgetary purposes. The future should offer good opportunities for establishing some order in assessing the significance of thousands of substances.

- *Immunization:* Profound expansions in the vaccine field may reasonably be expected. Not only are we having a resurgence in the application of long-known vaccines, but amazing developments in microbiology and immunology promise creation of another series of life-saving aids.

- *Implementation:* With an astonishing amount of scientific knowledge and resources, the U.S. is seeking actions that will provide universal coverage for all people against all diseases all of the time. The degree to which this can be accomplished remains to be seen.

The emphasis right now is on integrating health activities into the total fabric of society, because success in prevention, especially, lies in finding one's place in the constellation of all the causes of disease.

Many have always contended that a rise in the standard of living brings health dividends, without the trappings of public health practice. This is partly true and prompts us to look again to see where private enterprise, rather than government, may facilitate reaching desirable goals.

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