giene, boiling water, and wearing shoes instead of walking barefoot in parasite-infested soil.

The system of payment where everyone except plantation workers' families must pay for medical care encourages patients to delay coming to the hospital. Sometimes they can afford the cost of the medical consultation but cannot afford to buy the drugs that are prescribed. A government policy of supporting patient care more generously is a matter of urgent priority.

The Colombian experience has important lessons for this country as well. A modified service year in the United States—with newly trained internists, pediatricians, obstetricians, and surgeons working together in underprivileged areas—would not only benefit many patients but would also help young doctors sharpen their clinical abilities.

After struggling with Spanish for the summer, I come back with more empathy for foreign medical graduates practicing in this country. The experience has also let me see tropical illnesses first-hand and has given me the chance to improve some practical clinical skills. I have learned to reach decisions about patients without lab tests that I previously considered essential.

But the hospital, despite its optimistic beginning with United Fruit Company money and university affiliations, has not become the model for rural health care that was hoped. With a new director just appointed and a rapid turnover of doctors completing their rural year rotations, major changes are likely, but the direction of the changes remains uncertain.

Two overall impressions stand out. First, I was surprised by the almost complete lack of preventive, as opposed to curative, medicine. Perhaps the hospital cannot be expected to advance far in this area without more government action. Second, one cannot but admire the physicians of the Regional Hospital of Apartadó, who treat illness so well with so little.

—SAMUEL Z. GOLDHABER

Goldhaber, a fourth-year student at Harvard Medical School, was a news intern for Science *in 1970.*

Preventive Medicine: Legislation Calls for Health Education

It appears that therapeutic medicine, important as it is, may have reached a point of diminishing returns. The 12 to 15 percent increases that we are adding to our hundred billion dollar health care bill each year—even the portion that is not caused by inflation—apparently have only a marginal utility.—Conclusion of the task force on consumer health education of the National Conference on Preventive Medicine, June 1975.

It has been said that an ounce of prevention is worth a pound of cure. These days, we are plowing more than $104 billion a year into the health care industry, but not everyone is sure we are getting our money's worth. According to a recent report* of the Senate subcommittee on health, "it is clear . . . that progress in improving the health of the American people has not improved in proportion to our growing investment. Increasingly, questions are being raised regarding the efficacy of therapeutic medicine, which is the predominant emphasis of the health industry today. . . ."

Many of those questions are being raised by individuals who see in preventive medicine a chance to solve some of the medical problems that cannot be solved by therapeutic medicine alone. And those individuals are beginning to see some tangible results of their questioning. On 30 July, with barely a ripple of dissent, the Senate passed a disease control act that includes as one of its titles measures to increase federal and private activity in consumer health education for disease prevention.

The tenets of preventive medicine have a kind of compelling logic that is hard to deny, but the field does not have much sex appeal and has long been set aside by the public and the medical profession itself. (Doctors generally gain neither prestige nor power nor wealth by preaching the virtues of a sensible life-style.)

Testifying before the health subcommittee this past May, Anne R. Somers, associate professor of community medicine at Rutgers Medical School, referred to a study by Lester Breslow, dean of the School of Public Health at the University of California at Los Angeles and one of the leaders of the field. For 5½ years, she said, Breslow and his colleagues conducted a study of 7000 adults and concluded that certain simple health habits are associated with a longer life. These included: Three meals a day, with separate emphasis on breakfast; moderate exercise; seven or eight hours of sleep a night; no smoking; moderate weight; and moderate use of alcohol. Breslow's group reported that a 45-year-old man who practices three or fewer of these health habits can expect to live to be 67. The man who practices six or seven of them has a life expectancy of 78. "Where else, in the entire field of health care," Somers asks, "can you expect to get a payoff of 11 years life expectancy?"

Breslow's findings certainly were nothing new. Everyone knows that it is not good for your health to be fat, or fatigued, or malnourished, or often drunk. And maybe he is right about the payoff in terms of years. But it takes no special powers of observation to see that most people do not follow "preventive" advice. And as yet, in spite of the enthusiastic optimism of some individuals in public health, no one really knows how to persuade people, on a mass scale, to change their behavior in ways that will be good for their health. The evangelists of preventive medicine are stating that it is high time we tried seriously to find out, and they are seizing the moment to push for programs that would implement the few things that are known about changing human behavior.

The fact of astronomical health care costs and the perceived limits of what therapeutic medicine can do have combined to set a stage that is conducive to a new look at preventive medicine, which is coming into its own—at least on paper. The Senate's recently passed omnibus bill would establish within the Department of Health, Education, and Welfare (HEW) a high-level Office of Consumer Health Education and Promotion and a federally chartered private Center for Health Education and Promotion. The House is expected to consider the matter this fall. The Administration opposes the legislation.

During the past several years, a good deal has been said about preventive medicine and health education, but until now there has been no legislative action. In his health message to Congress in February, 1971, President Richard Nixon declared that "In the final analysis, each individual bears the major responsibility for his own health." Subsequently he created a

*Report—No. 94-330—on the National Disease Control and Consumer Health Education and Promotion Act of 1975.

presidential committee on health education to inform us about what we should do to meet that responsibility. In 1973, the committee issued a report. Its "primary" finding was that "the nation needs a National Center for Health Education to stimulate, coordinate and evaluate health education programs,"—of which there are precious few. In addition, it called for the establishment within HEW of some body that could serve as a focal point to work with all federal agencies that were, or should be, involved in health education.

A year or so later, prevention of disease was mentioned prominently in the HEW Forward Plan for Health, and there is increasing talk about teaching people to take care of themselves. A Bureau of Health Education has been established in Atlanta, within the Center for Disease Control (CDC), and a contract has been made with a private corporation to study the feasibility of setting up a National Center for Health Education. HEW officials think they are moving in the right direction. As usual, persons in Congress think they are not moving far enough or fast enough.

In December 1974, Arthur J. Viseltear went to work for Representative Tim Lee Carter (R–Ky.), ranking minority member on the subcommittee on public health and environment. It was there, in the House, that work on the health education section of the bill that has passed the Senate first began. Viseltear had come to Carter as a Robert Wood Johnson Health Policy Fellow (*Science*, 19 September) under the auspices of the Institute of Medicine, National Academy of Sciences. A Ph.D. in history, he is on the faculty of the Yale University School of Medicine where he teaches public policy. (He wanted a year in Washington as a Johnson fellow because, he has said, "I was beginning to feel like a lawyer who has never tried a case." It was time for some firsthand experience.)

Viseltear needed experience; Carter was willing to offer it to him and got the benefit of Viseltear's talents and labor free for about five months. He wrote Carter a memo about things in which he was interested and Carter told him to go ahead and develop his ideas. When not answering phones or Xeroxing or writing letters or doing some of the other decidedly nonglamorous things that fellows are called upon to do, Viseltear pursued his desire to have Congress support health education. He drew on his own experience and talked with others in the field. By the end of his stint in the House, he had converted his ideas into proposed legislation, with the help of one of Carter's aides who is experienced in drafting bills.

From the House, Viseltear moved to the Senate for his second congressional assignment after securing a place for himself with the Senate health subcommittee and LeRoy Goldman, principal staff assistant to its chairman, Senator Edward M. Kennedy (D–Mass.). Viseltear says he interested Goldman in his ideas about health education. The subcommittee was already involved in proposed legislation on tangentially related matters: (i) to expand the CDC's disease control programs to include mumps, diabetes mellitus, and other conditions "amenable to reduction"; and (ii) to extend existing programs for prevention and control of venereal disease.

Preventive Medicine Is Expensive

In May, hearings were held on several related bills before the Senate, and from these there emerged a single piece of legislation with three parts or titles—one on CDC, one on venereal disease, and a third on health education. In one of its early forms, the health education section called for as much as $140 million in federal funds. By the time it reached its final state, it called for a more modest and, Viseltear notes, politically realistic, allocation of $27 million to be spent during a 3-year period. The bill's drafters, enthusiastic about creating both a federal and private agency to deal with health education, did not want to jeopardize the legislation for the money. However, if anyone's aspirations for preventive medicine through health education are going to be realized in the future, it seems clear that it will be through expensive endeavors. By and large, present health education projects do not work remarkably well. Those few which have been demonstrably effective have had the advantage of careful planning and generous support. It is on programs like these that people like Viseltear would like to see the country build.

The Senate report on the legislation approvingly cites the Los Angeles County Medical Center diabetes program as an example of health education that has led to the prevention of complications from disease and consequent savings of money. That program stresses the "you must take responsibility for your own health" theme. Through pamphlets and, most important, attentive counseling by physicians and nurses, diabetics are taught how to take care of themselves. An evaluation of the program showed that the number of diabetic comas among "educated" patients dropped from 300 to 100 over a 2-year period, emergency visits declined by half, and 2300 clinic visits were avoided. Savings were estimated at more than $1.7 million.

Studies aimed at convincing large numbers of individuals to change their behavior to reduce the risk of heart disease have, in some cases, produced encouraging results. But these almost always have come from programs in which individual counseling accompanies more usual approaches through pamphlets and the media. What this seems to say is that there are no simple ways to modify behavior—no gimmicks that are quick and easy—much as some people may wish there were. In the end, health education for disease prevention may become a mini-industry in its own right. Its supporters adamantly believe that Blue Cross and other insurance carriers should begin paying for health education. Some go so far as to argue that all hospitals should be required to have a variety of health education programs.

In some quarters, the Senate bill is regarded as a piece of well-intentioned but sloppy legislation that will set up new bureaucratic machinery that is not especially likely to work. One can safely generalize, for instance, that the creation of a "high level" office in HEW is no sure way to obtain visibility and clout—two things Viseltear optimistically says will accrue to such an office, distingushing it from the low profile health education bureau in CDC. Nor is it obvious that a federally chartered private center is going to be able to do what, first the presidential committee, and now, Senate staffers hope it will. Says Viseltear, "This private center offers the private sector a chance to do what it says it can—unite Blue Cross and other insurers, industry, and voluntary societies into one group. Maybe such a union could get Battle Creek to take sugar out of breakfast cereals, maybe it could get the Department of Agriculture to stop giving a high rating to marbled meat and subsidizing tobacco." And then again . . . even Viseltear recognizes what he is saying. "All of this may be a pipe dream."

There is a lot about preventive medicine that we simply do not know. In some cases, information about *how* to prevent a disease is elusive. In some cases, authorities think they know what people should do to protect themselves but not how to get them to modify their behavior accordingly. In all cases, there is a lot of room for research and there is a small but vocal group of individuals who have begun to lobby, saying we should be spending as much on research in preventive medicine as we do on biological research. That is not likely to happen soon, but the spokesman for prevention will undoubtedly keep trying.

At present, there are a couple of health education bills in the House, which has yet to hold hearings on the subject. Chances are it will be spring before legislation makes its way through Congress to the President's desk. And if it gets there, there is no telling what might become of it.

—BARBARA J. CULLITON