The Pathway To Better Health Via Technology

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Eleventh in a series of perspectives on employing technology to solve the pressing problems of society.

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This address was given March 30, 1979 at a conference in Minneapolis, Minnesota, on The Role of Wellness in the Workplace, sponsored by Health Central Institute, a non-profit education and research corporation.

My talk today centers around three premises – first, that society cannot afford the cost of today's health care system; second, that the pathway to better health at an affordable cost has to be directed toward preventing illness as opposed to after-the-fact medicine; and, third, that the main initiative to meet this major societal need for better and more affordable health care should come from business.

Before elaborating on these premises, we should remind ourselves that better and less costly health care is but one of many major and growing social needs that include more and cheaper energy; greater energy conservation; rebuilding inner cities; environmental protection; lower food costs; higher quality education that is more available and costs less; and the creation of more jobs, especially skilled jobs.

Heretofore, meeting these needs has been largely considered the responsibility of government, but government has not been able to cope adequately with the major problems of society. As a result, these problems are growing to disastrous proportions.

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What is needed is a fundamental change in which business takes the initiative and provides the leadership for planning and managing the implementation of programs to meet the needs of society. These programs can be worked out in cooperation with government, labor unions, universities, churches and all other major segments of society. The major needs of our society are massive, and massive resources are required to adequately address them. The best approach is to view them as profitable business opportunities, with an appropriate sharing of cost between business and government, where the resources required for meeting a need are beyond those of a single company, as frequently they are, they should be pooled through cooperative projects or joint venture companies.

Control Data adopted such a strategy ten years ago. It has been pursued vigorously and has proven sound. Although we undertake some social programs just because they are the "right thing to do," we view the major unmet needs of society as profitable business opportunities.

Health care is one of a number of such programs. Before talking about Control Data's program in self-health management, which I believe will be an important contribution to building a pathway to better health, I will highlight what's wrong with today's health care system, and describe the essence of a better and more affordable system.

WHAT'S WRONG?

Since society can't afford the cost of today's health care system, it's time to seriously challenge more than just the prevailing economics within the system, and face squarely the need for basic modifications

in the system itself. The provider community – the health care system – is structured in the form of many thousands of small autonomous businesses, and is therefore unable to produce sufficient change from within.

The quality of care in the U.S. is one of the finest in the world. But cost escalation has occurred at nearly twice the overall inflation rate. And costs will continue to rise if there is no change in the present course of limited intervention by business and piecemeal regulation and planning by government. Neither of these has worked in the past, nor will they work effectively in the future because neither addresses the cause of the problem.

The problem originates from a highly fragmented delivery system characterized by a professional tradition of individual autonomy and an absence of economic incentives for efficiency. Group health insurance and other forms of reimbursement arrangements in the system reward neither consumer nor provider for more efficient use of costly resources. As a result, quality care is, for the most part, provided, but frequently in a wasteful manner, driving expenditures even higher.

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The development of advanced medical equipment in the U.S. has improved the quality of care, but it also has added to the cost. However, despite the highest per capita health expenditures in the world, the U.S. does not rank among the top ten nations in the world on most common health indices. Virtually unlimited expenditures in the present health care system are now yielding only marginal returns in improved health.

The location of health care providers and facilities results in serious problems of accessibility. Even for those who can afford it, health care is often unavailable due to maldistribution of resources. The proportion of physicians in the U.S. is higher than in Sweden, The Netherlands, Finland, or France, yet vast disparities exist. Mississippi had .96 active physicians per one-thousand population in 1974, while New York State had 2.45.

As a result of such maldistribution, those who live in most urban areas have an abundance of health care resources available, while residents of many rural areas and some inner-city areas may have difficulty obtaining adequate health care. Perhaps the worst situation exists on many of our Indian reservations, where the level of health care available is appallingly poor. This is a shameful situation in our generally affluent society.

In a nation which spends nearly $200 billion annually for health care – more than $800 for each man, woman and child – it is astonishing to note that less than 2.5 percent of the total expenditure is spent for disease-prevention and an even lower proportion – 0.5 percent – for health education. It is even more astonishing when we consider the fact that the greatest improvements in mortality and morbidity have come through improvements in public health, nutrition and in standards of living.

Health education and illness prevention would not only improve health, but could significantly reduce the costs of health care. Dr. Henry Blackburn, Director of the Laboratory of Physiological Hygiene at the University of Minnesota, once stated, "It isn't that an ounce of prevention is worth a pound of cure. It isn't so because there is no cure for the major maladies of modern man. Prevention is the only answer."

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The government spends one billion dollars annually to treat victims of a single occupational disease, black lung, which afflicts coal miners. The disease could have been largely prevented thirty years ago. The consequences of cigarette smoking, which are preventable, now cost more than twenty billion dollars a year. Circulatory illnesses, about half of which can be prevented by controlling health risk factors, cost the economy thirty-nine billion dollars every year.

The major health problems in the United States are chronic diseases of middle and later age. These are primarily heart disease, cancer, and strokes. Death and disability in middle age is largely premature and potentially preventable. For those under 44 years, the leading causes of death are accidents, heart disease, cancer, homicide and suicide. For those under 25 years, accidents are clearly the most common causes of death, with homicide and suicide the next leading causes. Most of the death and illness (in middle age) is controllable by individuals, having little to do with the health care system.

According to Dr. John Knowles, recent president of the Rockefeller Foundation and editor of the book, *Doing Better and Feeling Worse*, 99 percent of us are born healthy and made sick as a result of personal misbehavior and environmental conditions. Aaron Wildavsky, former head of the Russel Sage Foundation, says 90 percent of illness is determined by factors beyond the doctor's control. These factors include personal eating habits, smoking, and lack of exercise, as well as the healthfulness of air, water, food, and conditions of the workplace.

And studies conducted by Dr. Lester Breslow and Associates in California indicate a direct relationship between good health and following these seven practices:

- Get seven to eight hours of sleep.
- Eat breakfast regularly.
- Stay slender (slightly below normal weight).
- Seldom snack between meals.
- Stay active with planned exercise, sports, walking, or vigorous work.
- Use alcohol moderately, if at all.
- Don't smoke.

Furthermore, the habits leading to sound health are additive. According to Breslow's study, a 45 year old man who practices less than three of these can expect to live to 67 years of age, whereas if he practices six or seven, he can expect to live to 78 – an addition of 11 years. The ability of an individual to add to his or her life expectancy so substantially through practicing these simple rules is indeed impressive.

Dr. Roy Menninger, president of the noted foundation, estimates that 80 percent of the complaints people take to their doctors – colds, upset stomach, back pains, loss of appetite, insomnia, fatigue – are not physical ills as much as they are psychosomatic reactions to problems of living.

Moreover, according to Menninger, emotional tensions and anxieties contribute directly to the increasing incidence of serious illnesses. As people try to cope, they often end up smoking, eating poorly, abusing alcohol or drugs, or failing to exercise regularly. Though we have conquered such dreaded diseases as smallpox and polio, we are seeing more problems which can frequently be related to lifestyles.

One of the lamentable by-products of America's unparalleled standard of living has been a sedentary way of life, over-consumption of food and chemicals, and inability to cope with an increasingly complex world. As a result, America has become an unhealthier place in which to live and work.

NEW PATHWAYS

As might be expected, the explosion in medical care costs has triggered greatly increased public awareness and a demand for solutions. Unfortunately, many of the current attempts to find solutions may only serve to aggravate the situation. Efforts such as national health insurance, regulated distribution of care, and additional governmental controls fail to address the heart of the problem.

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Fortunately, we do not have to await some new research discovery to open up pathways to better health for Americans. What we need is a new attitude toward health: the idea that individuals and communities have a major responsibility for their own health; that illness and injury usually represent a departure from the norm; and that good health is a natural condition for human beings, not just an absence of disease. This concept has been stressed at a number of health conferences and by such organizations as the World Health Organization, the World Council of Churches, the Conference of Future Directions in Health Care in 1975 and 1977, and the National Council of Churches.

Health promotion is becoming a social movement of major proportions. It is gaining in popularity due to rapidly rising health care costs and to a concern that people's health in general is not improving in proportion to the increasing number of dollars being spent for medical and hospital care. It has also gathered momentum as it becomes more and more apparent that adverse lifestyles and negative health habits are responsible for much of the unnecessary sickness and disability experienced by many Americans.

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At the same time, people are beginning to recognize the limits of medical care as a means of improving health. Traditionally, medical care providers have not given consumers increased access to health information. And it is unlikely that organized medicine will now rise to the occasion and provide a working model for health improvement. Our illness-oriented system will no doubt continue to improve the excellent care it usually provides for episodic illness, and no doubt will broaden its focus to incorporate more health promotion. But there are inherent constraints in this system, limiting its ability to contribute to real improvement in health or wellness.

Government efforts have been extensive, but not effective. Billions of dollars have been spent to improve the availability of care and, more recently, to contain costs, but government lacks many of the necessary resources. Even when these efforts have been effective, such as the Navy's program on alcoholism, they have not been implemented widely. What the government has not been effective in doing is actually improving health for very many people or reversing cost trends. Most government policies have, in fact, driven health care costs upward.

Government has lacked the talent to do much more than spend massive amounts on medical research and on health care delivery, but I don't believe that we can fault the government any more than some industries (pharmaceutical companies, liquor distillers, cigarette manufacturers, food processors, chemical companies, etc.), or medical providers, health and accident insurance companies, the education establishment and other institutions.

BUSINESS LEADERSHIP

It is clear that business will have to be the principal source of initiative to bring about the desired improvement in our health care system. Business involvement in health care delivery has been mainly in paying the bills and perhaps, in so doing, compounding the problem. But there is growing awareness that business is a significant stakeholder in the health care system. The eye-opener, of course, has been the escalating cost of health benefit plans which are costing hundreds of millions of dollars annually for many large corporations, and which involve equally significant diversion of corporate resources for smaller ones as well.

Only recently have the opportunities for health improvement in the workplace begun to be recognized. And there is a growing awareness that the workplace offers a highly suitable climate because:

- It is now common for two or more members of a family to be working.
- The majority of the work force is stable, with long periods spent with one employer. Thus, there is an opportunity to apply long term health improvement techniques.
- Experience shows that employees are willing to participate in health programs offered at the work site, more so than in similar programs at another location.

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For those reasons, Control Data selected the work site for a major focus of its self-health care program. At the same time, believe that Indian and other rural populations can benefit greatly from application of these principles.

CONTROL DATA'S PROGRAM

Before describing Control Data's self-health management program, I will briefly describe our experience in health and medical activities over the past fifteen years.

Our first efforts, commencing in 1968, were focused on the use of computers in the diagnostic process and patient record controls. In 1971 we acquired a multi-phasic screening capability and are currently providing twenty-five thousand physical examinations a year. Also in 1971 we became engaged in offering equipment for automating hospital pathology laboratories. Most recently, we acquired the Life Extension Institute (LEI), a leading nationwide organization devoted to preventive medicine – through periodic physical exams and health education programs.

Control Data resources which can be focused on developing health products and services now include:

- Over sixty physicians specializing in preventive medicine.

- A nationwide presence including ten multi-phasic screening centers, two associated centers, and over nine hundred associated physicians.
- Health education courses and a staff of professional health educators.
- Software directed to the operation of multi-phasic screening centers, medical records, and health risk profiles.

EMPLOYEE ADVISORY RESOURCE

In addition to those resources, Control Data offers a service to its employees and to employees of other subscribers called "EAR", or Employee Advisory Resource. This is a confidential counseling and referral service offered to both employees and their dependents to help them with personal problems. EAR is a cooperative program that makes full use of the great variety of existing community services as well as company resources. EAR counselors assist employees in defining their problems, deciding on the course of action that best helps solve those problems, and identifying the most appropriate company – or community – based resource to assist in the solution. EAR uses a telephone hot-line available 24 hours a day.

EAR cannot be evaluated strictly in economic terms, although it is apparent that there are substantial savings in medical benefits and employment costs. In particular, the rehabilitation of alcoholic employees, returning them to acceptable work performance, is of enormous importance. The company is paid back in improved job performance, decreased benefit costs, and lower rates of absenteeism and tardiness.

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ROSEBUD

Another resource comes from the experience gained in a project delivering primary health care to the isolated Rosebud Reservation of the Sioux Indians in South Dakota. In order to be most effective in improving health care, one should have the experience of tackling the very worst problems and, as noted earlier, those kinds of problems certainly exist on Indian reservations.

On the Rosebud Reservation, Control Data has worked with Indian health providers to dramatically improve the health of that tribe through technology and managerial resources. Previously, one small hospital was the only source of health care for 8,500 Indian people. Those who required that care had to travel up to 130 miles to get it, and the number of professional staff was woefully inadequate to the task. Significant improvements are evident since Control Data's health van began traveling the Reservation, providing care to 900 residents per month. In addition, Indian community health workers have been trained and now, as a further improvement, four small clinics will be established.

PLATO COMPUTER-BASED EDUCATION

The only other resource relating to health care which I will mention is Control Data's PLATO computer-based education, addressing the worldwide need for better, more available and lower cost education.

The best way to make major progress in solving this massive and urgent educational problem is through the use of technology with television, audio/video tapes and satellite transmission coordinated in a network learning system with computer-based education.

Control Data has been engaged in developing PLATO computer-based education for seventeen years. We see computer-based education as ultimately becoming the largest part of our business.

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PLATO provides a broad and flexible range of courseware stored on a central computer. The courses are accessible by students through television-like terminals operated by the student at his or her own pace via a typewriter-like keyboard.

Computer technology provides the only practicable means of bringing to education the quality, equality and productivity improvement that is so sorely needed. Hence, it is an essential part of any broad-based, effective health education program. In addition, PLATO offers a new dimension to individualized health assessment.

SELF-HEALTH MANAGEMENT

Now I will describe Control Data's new employee health program which centers around self-health management. Education in health care will be offered to all U.S. employees and their families, and will encourage them to assume more personal responsibility for their health."

This program is based on the principle of personal responsibility, and it is unique in this respect: it will incorporate all of the necessary elements in health assessment, promotion of good health and disease prevention into an integrated system which we expect in time will return significant benefits to Control Data.

In my judgment, the key to success in such an undertaking is the proper blending of all these elements and a firm commitment to real change. All of these elements are widely known. In fact, most of them have been tried by major U.S. corporations . . . physical exams, exercise, fitness, blood pressure control, weight control, self-assessment, data collection, incentives for individual health care, health information, alcohol counseling and smoking cessation. Some have been successful, but only in a limited way.

Most often, the interest in any one organization is limited to one or two people . . . a corporate medical director, for instance, or one who

has become a jogger, or a benefits manager, or an unusually well-informed chief executive.

Development of a really workable system requires the involvement of knowledgeable people at every level, and participation right down to the grass roots. That's the approach we're taking at Control Data.

We expect that one of the prime motivators in a successful health program is feedback of information showing its results. For the individual, this is a periodic self-assessment indicating a healthier lifestyle or a higher level of physical and mental well being. Since we'll be measuring overall health, not degrees of sickness, we'll need a new kind of information system unlike those used by physicians and hospitals in the past for episodic, remedial care. Also, there must be a guarantee of privacy of personalized data for each individual in the program.

From the viewpoint of the employee, the program must be convenient to join, physically accessible, enjoyable and beneficial in a measurable way. It must facilitate – but not require – the individual's choice to be healthier. It must make available useful information for self appraisal, self maintenance of health and the appropriate use of medical services when necessary.

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The approach we're taking meets requirements that include:

- Baseline medical information, collection and analysis.
- Health risk appraisal.
- Individual risk orientation.
- Learning risk management skills.
- Screening for early identification of problems.
- Aids for maintaining one's health.
- Motivation and incentives.
- Frequent feedback.
- Learning how to better utilize the health care system.
- Learning how to care for oneself.
- Patient education.

Significantly, nearly every one of these elements requires a new kind of learning by the participants which can only be met with a computer-based system having the capacity to store and deliver the massive amount of individualized, multi-media education which is reliable, captivating and motivational.

Because of the magnitude of this undertaking, the help of other organizations is needed if self-health management is to progress as rapidly

as possible, not just for Control Data, but more importantly, throughout society. Consequently, Control Data is seeking cooperative efforts with other corporations in order to develop the required courseware and ensure its use by large numbers of people.

To facilitate this cooperation, Control Data has taken the initiative in establishing a venture called the Health Education Courseware Company, which will be engaged in designing, testing, and marketing self-health management courseware. Control Data will invest in the company, but no one investor will have a controlling position. Several organizations have expressed an interest, so it should be in operation by this summer.

INDIAN AND RURAL HEALTH CARE

In addition to introducing a system of self-health management in the workplace, Control Data is planning to modify and apply such a system in areas that have the greatest need for better health care. These areas include Indian reservations and other impoverished rural communities.

Our experience at Rosebud convinces us that major improvement in health for these people cannot be achieved in any other manner.

In this effort, we look to the federal government and to business corporations to provide major financial support and to create a new kind of public-private partnership. There is no doubt in my mind that this will be realized as soon as plans now being formulated are completed and presented later this year.

Not only is this Indian and rural effort crucial to the welfare of those segments of society, but ultimately, it will benefit all of society as resources devoted to self-health management are expanded and made available to the residents of our large urban and suburban areas.

Obviously, there are enormous potential benefits from involvement by business in the resolution of health problems in the United States . . . better use of the society's resources, new kinds of ventures for the private sector, a more appropriate role for providers of health care, less dependence on government for decisions affecting our health, and a higher level of physical and mental well being for our people.

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There are many obstacles, of course, and many risks ahead. Government and business will have to enter into a new kind of partnership to bring about the required changes. But if one grasps the adverse consequence of not seeking a pathway to better health, the obstacles and risks are quite acceptable.

In the not-so-distant past, most health care was provided in the home and depended largely on family-based healing. In recent decades, the trend has been to move essential health services farther and farther from the home to doctors' offices and finally to highly specialized medical complexes. While this is beneficial for providing specialty care, it is not the most cost-effective use of health care resources, and it has contributed to a kind of medical dependency which for many Americans can be injurious to their health.

What we propose, simply, is to decentralize the system so that the responsibility for health can be shifted back to the workplace and the home, back to the individual and his or her family. The distribution of knowledge will allow each person to participate in a new kind of health system in which all people – no matter where they are or who they are – will be capable of managing their own lives more healthfully.