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The Place of Automation in National Healthcare

Ted J. Macinski

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An Abstract Presented to the Faculty of the
Graduate School of Lindenwood College in Partial
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Preface

History shows that great economic and social forces flow like a tide over communities only half conscious of what is befalling them. Wise statesmen forsee what time is thus bringing, and try to shape institutions and mold men's thoughts and purposes in accordance with the change that is silently coming on. Unwise are those who bring nothing constructive to the process, and who greatly imperil the future of mankind by leaving great questions to be fought out between ignorant change on one hand and ignorant opposition to change on the other. John Stuart Mill ("Healthy Missourians 2000" 1)

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ABSTRACT

This cumulating project will focus on the development of the current U.S. healthcare system and the involvement of government, especially the federal government in this process.

The focus is on the proposal to use advanced information systems technology to establish cost control for the healthcare sector of the economy.

The issues which are addressed are what role the federal government plays in the current healthcare system, the proposed use of a comprehensive federal health data bank which would include data on all U.S. residents, and alternative applications of systems technology which are operational or under development by private and state government.

Among the questions the author poses are are whether a comprehensive data system is justified, practical, cost effective, or warrented, given the current state of healthcare in the U.S. This work also addresses concerns about the use of interactive computer networks to gain information on U. S. citizens without their knowledge or consent.

The introducation of healthcare legislation by President Clinton's administration, including a proposal for a national healthcare data base, brings home the topics discussed in this work. It is hoped that the reader will better understand the complex nature of this debate and the need for citizen involvement in public discussion before any plan is initiated which provides for creation of such a system.

The author does not propose that any system is inherently evil or misguided. However, there is reason to question the introduction of a process of such magnitude, and with implications for every citizen. The individual right to privacy is already threatened by automation both in and out of governement. It is hoped that the reader will apply the matters addressed in this discussion to help governments make the proper decisions about healthcare.

The material in this discussion includes interviews with individuals who are part of the healthcare system in decision-making capacities. In additon, some specific information from federal and state legisltators was solicited, with limited response. Much of the material in this work was a result of research conducted by others. It focused on the practical concerns of automation as it operates in the current health services envirnment.

The author has been involved in healthcare for some fifteen years in a variety of settings. The concern about how the future of healthcare in this country will be is both real and immediate. There are no clear answers to the problems identified in this work. It is hoped that there is enough insight to aid others as they formulate their opinions.

Chapter II

IS THERE A HEALTHCARE CRISIS IN THE U.S.?

The collective media in the U.S. has been making a case for a healthcare crisis. The basis for these stories are public and private health industry participants from organizational and institutional systems. Such informants are linked to the complex financial system which feeds the healthcare sector of the economy. These players are concerned that healthcare is draining essential financial resources which could be employed to improve the U.S. industrial base in the face of increasing world competition in a world economy.

Growth of the healthcare sector of the economy is undeniable. K.V. Glenn, Research Director of the Competitive Enterprise Institute, states that:

> ...in 1965, 6% of the Gross Domestic Product was spent on healthcare. Now nearly 14% of the United States GDP is consumed by healthcare costs, more than double the percentage of Britain or Japan. Some estimates are that health-related spending could soar to a third of the U.S. budget by the year 2000. According to Michael Tanner of the Georgia Public Policy Foundation, approximately 76 cents of every dollar of healthcare purchased is paid for by someone other than the consumer (Bender 22).

Government interest thus far has been primarily as a payer. Like other financial contributors, the government has used financial clout to influence and even dictate the direction of change by directing the flow of payment for various services. Like other payers, including those from other economic sectors of the

U.S. economy, the increased cost has forced diversion of resources from other areas of need.

It is the feeling of the payers that the diversion of resources to healthcare has become a crisis. The consumer has been cushioned from some of the effects of health costs, but even they have been noticing that their out of pocket cost has increased despite the third party payments. There is much discussion about what actions are needed, and by whom.

Proposed changes in healthcare require examination. The motivation of those proposing change, and how the diverted capital would be utilized should be assessed. Finally, we should examine how changes in healthcare delivery might effect the society as a whole.

The healthcare crisis is complex, too complex to be resolved by any single adjustment. The civic responsibilities of government and the economic structure are too complex for that. Any change in the complex and interactive economy involving healthcare would impact the entire economy as well as the political structure. One important issue is the ability of individuals to maintain some privacy with respect to medical information about them in the system. Change could cause unforeseen or intentional breach of privacy with respect to access to health information.

A panel discussion held on 25 June, 1996 focused on the changes effecting health services and health services administration. The key issues were the form that changes were taking and the effect of these changes on personal privacy and availability of services (Healthcare Financial Management 23). Carl H. Hitchner JD, CPA, and winner of the 1996 Healthcare Financial Management Award was quoted in the official Healthcare Financial Management Magazine as follows:

"As a matter of public policy, we cannot afford the healthcare system we have had in the past. A change is always difficult, and we are going through a period of change" (23). Dr. Arnold S. Rehlman MD., Educator and editor emeritus of the New England Journal of Medicine stated: "There is a growing national unhappiness with the way healthcare is being treated as a commodity controlled by large organizations" (23). The HMFA panel generally agreed that:

> ...it is hard for both financial managers and physicians to reconcile cost issues with clinical issues, but the healthcare industry continues to be driven by moral imperatives and is making efforts to achieve balance. (23)

The morality involved in healthcare is not solely based in religious thought. There is a common understanding that morality is a trait common to humans regardless of religious instruction or belief. Healthcare is thought to be a measure of civility in a society and a source of communal pride. Our society has also given personal privacy a high status in our moral base. It, like healthcare, has been a source of pride or consternation depending on circumstances.

Privacy has always been a factor in U.S. culture, but it has gained increased public and legal focus in the past fifty years. The concern is rooted in the ability of others to breach personal privacy as technology and mandated detailed record keeping have been put in place. Analyst and consultant Emily Friedman was quoted by HFM as very concerned about privacy protection, expressed as follows:

"Protection of paper records has been abysmal. When you start talking about electronic medical records with information being passed over the phone

lines, what you are doing is multiplying the problem many times" (Healthcare Financial Management 23). Ms. Friedman stated that the debate is around three areas:

1) What is motivating change in the healthcare system?
2) What is the direction of change?
3) What are the effects of change on providers and consumers? (23)

Changes must be able to adapt to the society even as the society embraces change. A democratic system of government requires popular support to generate the political will to make major change possible, especially where public money is involved. The political system must be given a platform to sell change while avoiding panic or political reaction that could derail the changes before they are even initiated.

There is a quiet anger on the part of many individuals over the use of healthcare change to provoke political reaction in the 1996 election process. This type of activity is a direct threat to the kind of legislative decisions which the government feels is necessary. The U.S. system requires popular will to generate legislative courage to proceed. It must work through a voluntary process rather than an edict. Secretary of Energy Hazel O'Leary stated in her confirmation hearings that "heavy handed Government price regulation does not work" (Bender 28). The theory that political acts can be different than political rhetoric has been undermined by open access to the legislative process through televised live proceedings. The actions of individual legislators cannot be easily hidden. Rhetoric can bind the legislator as never before.

Chapter III

RECENT DEVELOPMENTS IN HEALTHCARE IN THE U.S.

The current healthcare system grew from the need to provide a means to treat large numbers of casualties in the event of a major war with the use of weapons of mass destruction. The Civil Defense debate has raged over whether civilians can be protected and cared for, or whether such casualties should be accepted and the focus should be on destruction of the attacker. While nuclear weapons had limited sources, both chemical and biological weapons could be used to great effect by rather modest national entities with reason to do so. The Civil Defense exponents presented a case for the practicality of sheltering and mass relocation in a crisis (Vale 85).

The scope of this ongoing debate is far beyond the scope of this work. It involves the formation and mandates of many federal organizations including the Federal Emergency Management Administration (FEMA), Department of Defense (DOD), The Office of Civil Defense and Mobilization (OCDM), the Department of the Navy, and the Civil Defense Preparedness Agency (DCPA). What follows is a summary of the work done by Lawrence Vale on comparisons of U.S. civil defense planning compared to several other nations.

The modern U.S. healthcare system evolved from a progressive response to epidemics and chemical weapons since World War I. The traditional public health approach of the 19th Century was inadequate to deal with weapons of mass destruction and epidemics spread by rapid transportation over the world. The

evolutionary change had to be stepped up with the introduction of nuclear weapons in 1945, and the start of the Cold War (Vale 58).

Civil Defense preparedness was propelled by fear, directed at the U.S. population through government channels. This fear provided political will to pay for the rapid growth in healthcare infrastructure needed to treat mass casualties. Healthcare became a quasi-military cooperative effort which integrated civilian and military systems more directly than ever before in U.S. experience. Again, the full story of how this system evolved is a subject of major proportions. The significant factor is that government directly influenced the current healthcare system design and financed much of the brick, mortar and human infrastructure we see today. The conduit of public money fed health-related research through World War II and into the present. This research has generated much of the knowledge and tools in common use in medicine today.

Most of the essential documents involving U.S. Civil Defense planning are still classified. Some are available in part to research. Two documents worthy of note are Presidential Directive-41 (Carter Administration) and National Security Decision Directive-26 (NSDD-26). The key document tied to the Federal Emergency Management Agency (FEMA) is Presidential Directive-59 (Carter Administration). This document, called the "Holy of Holies" by FEMA officers, remains highly classified (84).

The process of civil preparedness shifted resources to health-related areas of the economy. There was a steady decline in emphasis on war-related spending to avoid fixing government policy by the mass hysteria which could result from

such emphasis. The bulk of the money allocated was labeled as disaster preparedness rather than war preparedness (Vale 85).

The process generated a steady shift of resources into the healthcare sector in relation to other sectors of the economy. The growth was accelerated by use of government inspired propagation of information to document public gain in relation to their own health concerns. This translated to the kind of political support which could be sustained.

The American Council on Science included the following study in a document quoted in U.S. News and World Report. It states:

> According to Joseph Newhouse, a Harvard University economist, healthcare spending grew only 1.4% per year between 1929 and 1940 and accounted for 4% of the GDP (Gross Domestic Product) at the end of that period. After 1940, healthcare costs grew at an annual rate of about 4% a year and swallowed up 13.4% of the GDP by 1991. A number of highly technical advances...have contributed to rising healthcare costs, but even less expensive therapies have increased expenditures by, paradoxically, keeping people alive longer...elderly people could survive about of pneumonia only to die of something else like cancer, which is more expensive to treat (Dentler 27).

The general understanding of the article was that the American Council on Science was that the research structure passed through simple advances in treatment to protect the vastly more expensive research projects, and the continuation of that research using public funds.

> Some individuals consider the problem interlocked in such complex ways that no "blame" can be apportioned out. Survival due to advances in treatment rarely mean cure. The process then becomes one of ongoing maintenance rather than death. A new treatment for severe anemia. Nearly all of the 100,000 patients undergoing dialysis for chronic kidney failure suffer from a deficiency of erethropoietin, a hormone that stimulates red blood cell production. Its absence leads to severe anemia. The missing substance can now be produced by genetic engineering and is easily administered on a regular basis. Although the therapeutic benefits of the hormone are remarkable, the its price tag is daunting: more than one billion per year, including the use of erethropoietin for the anemia in AIDS patients who take AZT (27).

The conclusion to draw from these factors is that humane distribution of technological improvements to all is responsible for the overall healthcare crisis by vastly increasing the overall national price tag for healthcare.

However, if such advances were used selectively, then moral issues would likely cause a political backlash if discovered. There is no political method to limit treatment options in a way that would significantly change the effect of the advances on mortality and morbidity.

The only tried and true method of restricting access is by some form of rationing. Rationing in this system is locked in a social discussion about the quality of life. The option to withhold treatment is offered where recovery prospects are poor, and where the prospects for a normal life are limited. Rationing today is tied directly to third party payment providers. The withholding of funds creates the means to withhold treatment unless personal or private funds can be raised. This limits the effect of such experimental or unproved procedures

to the few with adequate resources. These numbers have little effect on the demographics of large populations.

Eddie Rasell is a health economist with the Economic Policy Institute in Washington D.C. He is quoted in a 1993 statement as follows:

> Despite a declining rate of insurance coverage, national healthcare spending is rising rapidly. In 1992 we spent $389 billion for healthcare, or one-seventh of our Gross Domestic Product. Adjusted for inflation, spending rose by a whopping 8.5% over 1991, and by 39% since 1987. Since 1988, the share of GDP devoted to healthcare has risen from 10.8% to 14% (Bender 39).

The critics of the trends in healthcare imply that the redirection of economic activity to the healthcare sector is a drain on the resources which might be used in other sectors of the economy. There is an interaction between all parts of the economy which critics do not appear to take into account. The medical infrastructure including education, supplies, equipment bricks and buildings must be created and supported.

The effect of direct purchasing and long-term financing of construction is a definite consideration in any economic equation if it is to be valid. If the shift to healthcare is to be criticized, then the total effect of such acquisitions on the other sectors must be considered in the balance.

The same applies to the effect of health services on the users of healthcare and their payers. This factor is very important, as it represents shifts in the purchasing power of individuals and employers throughout the economy. Rasell

states that "...Between 1980 and 1991, the average cost of health insurance for an employee and family rose from $1,806 (1991 dollars) to $4,464, while employee out-of-pocket expenses rose from $248 to $1,300" (39).

Another measure of economic impact is to study how the U.S. investment compares with that required in other nations. This is not a measure of the services provided, or the continuity of care. It merely compares the outlay of capital to healthcare per person covered.

The following table is compiled from data supplied by the Organization for Economic Cooperation and Development (OECD):

Table 1

International Healthcare Spending 1990

COUNTRY	PERCENT OF GDP	PER CAPITA
Australia	7.5	$1,151
Canada	9.0	$1,795
France	8.9	$1,379
Germany	8.1	$1,287
Italy	7.7	$1,138
Japan	6.5	$1,145
Sweden	8.7	$1,421
United Kingdom	6.2	$932
United States	12.4	$2,566

Source: (Bender 40)

These numbers point to a system which is a drain on U.S competitive ability when compared to the resources other nations have invested in healthcare. The real impact of these numbers is higher taxes, reduced competitive ability in the global marketplace, and reduced return on investment.

An additional consideration is that the U.S. system is neither universal nor comprehensive. There is reason to believe that many people are dissatisfied with the services currently provided. A student of this system might ask, "How much is enough?"

Chapter IV

THE AMERICAN HEALTHCARE DREAM

The U.S. healthcare system has undergone drastic changes along with the growth in cost since World War II. This has been a result of, and has caused, a great deal of change in what Americans consider basic healthcare services. The healthcare industry, the education industry and the allied government support systems have built an expanded definition of illness. This definition now includes wellness programs, non-restorative cosmetic surgery and various forms of behavior which are neither debilitating nor criminal as within this broad spectrum.

The effect of this public expectation, the price of litigation related to cosmetic surgery and other non-essential services incorporated into healthcare, and lost productivity due to treatment of previously routine disciplinary problems cannot be measured. At the same time, real diseases with high costs to society when left untreated, continued outside the main current of expanded treatment expenditures.

The mental health sector of the healthcare industry has been one area which suffered from severe limitations on covered services. The expanded definition of mental health, incorporating many things such as marriage counciling and personality development, created a problem for the public and legislative agenda by becoming too inclusive. The true mental illnesses which

pose a threat to the individual and society were lost in a sea of psychological definitions which could not be defended when scrutinized.

Overall healthcare became a concept of long and active life free of daily stress, aging and even death itself. The process, combined with a natural instinct for self-preservation, snowballed outside the control of those who first espoused the possibilities of the healthcare system. The desire for youthful appearance, once primarily reliant on cosmetic applications of makeup and such devices as wigs, is now often attempted with varied success by medical and surgical health practitioners. Such processes often originated from experiences with restorative treatment following accident and disease. But availability of surgical suites, hospital beds and specialists for cosmetic surgery and various medically mediated cosmetic medical treatment allowed doctors to tap the potential in the appearance market by body sculpting. Perhaps one of the more common surgical prosthesis procedures of this kind is breast augmentation.

Breast augmentation is distinguished by plastic surgeons from breast restoration following a deformation by accident or surgery. Restoration is sometimes used for specific congenital deformities. Augmentation is a procedure to reshape the mammary glands for cosmetic purposes by implant of a prosthetic device. Augmentation is the term used by surgeons for cosmetic surgical change which involves an implant device.

Some individuals may be treated by augmentation for psychological reasons (including sex change and some body image features which cause psychological problems. Most are a result of individual desire to reshape their figure to suit their ideal body form. The ratio of prosthesis placement for

reconstruction, augmentation for medical reasons other than cosmetic, and those which are purely cosmetic are hard to distinguish using statistics. There are some plastic surgeons who do only augmentation procedures. Others do a mix of reconstructive and elective augmentations. One practice contacted by the author listed 51 augmentations in the past year (1996) of which only three were called restorative.

Information was requested by telephone from the American College of Plastic and Reconstructive Surgeons (Chicago, Illinois). The spokesperson at that organization headquarters obtained the following totals from the organizations official statistics based on 1994 (the latest available at the time this author obtained the information). The totals given were:

Table 2

Statistics on Specific Plastic Surgery

Breast Augmentation	39,247
Breast Reconstruction	25,933

Source: American College of Plastic and Reconstructive Surgeons, Public Relations

The American Acadamy of Cosmetic Surgery indicates that 44,439 breast enlargements were done in 1994, including 663 pectoral implants on men (What Price Vanity 79). Women are overwhelmingly the recipients of the top fifteen cosmetic proceedures, with the exception of hair implants (79). The cost of a breast enlargement was $4,500-$8,500 according to the same source (79).

The spokesperson for the American College of Plastic and Reconstructive Surgeons states that reconstructive surgery is more difficult and board certification is selective toward highly skilled practices which are more likely to attempt reconstruction. Many uncertified physicians do cosmetic proceedures without board certification of any kind. The surgery continues to have many of the same risks associated with any surgery. These include infection, implant hardening or rupture, loss of sensitivity, and joint pain (What Price Vanity 73). In addition, the current legal problems identified with silicone prosthetic devices are an example of legal liabilities which are a part of any medical procedure. These liabilities effect the cost of insurance by individuals and by the practicing physician regardless of his practice in many cases.

Cosmetic surgery (defined as aesthetic surgery in current terminology by the surgeons) was explored in terms of cost and risk. The American Acadamy of Cosmetic Surgery states that 1.6 million "vanity proceedures" were done in 1994 (What Price Vanity 72).

If only the ratio of breast reconstruction to augmentation derived from these sources are used and the percentage of risk is the same for both types of procedures, than some two thirds of the surgical complications and legal encumbrances from this procedure are likely to result from elective cosmetic procedures. It must be remembered that cosmetic surgery was not common at all before World War II, and that most of the top fifteen cosmetic proceedures did not even exist then.

The focus on such surgical remedies to natural occurrences which are not generally viewed as defects is generated in part by the healthcare providers.

Physicians and surgeons use advertising techniques to draw prospective patients. The process does not create the desire to be more attractive by surgical means. It does, however, promote the belief that such changes are both possible and practical. The financial means to support such procedures, though weaker than those provided for emergent or medically required ones, remain available to many none the less. If the major contributor to the expectations of the public is the physician, then how does the physician choose the procedures and methods to target?

Physicians are both a product of the society where they grew up and of the medical training process. They are motivated by a societal concept which can focus individual effort by financial reward and punishment. They also are guided by the financial structure which pays for the education process up front as grants, scholarships or loans. The medical school has held traditional control over how many individuals will be allowed to specialize in each specialty. Such numbers are decided by the school, the professional medical organizations, and the federal government.

The education of physicians is where the type of practices, methods of practices and tools to be used are imprinted into the physician. This process joins social engineering to the operative process. It is where the medical institution has greatest impact on how the healthcare industry will be structured in the future as physicians mature and eventually retire.

This education system educates to utilize high-technology equipment and services, then financially rewards use of such services by the practicing physician. The process generates a dependence on use of the most expensive options without

concern for the cost to the private payer, the third party insurance carrier, or the government. Rasell defined this process as follows:

> Another factor that contributes to the high testing rate is the U.S. medical culture and the standard of practice taught in U.S. medical schools: Many doctors' philosophy is to do everything possible for the patient, do every test no matter how slim the chance that it will provide useful information. The result is that many doctors perform many unnecessary and inappropriate procedures (Bender 42).

The over capacity designed into hospital construction, rapid acquisition of high technology items and the expanded rate of medical school graduation were not uncontrolled events. They were supported by government policy and both the private and public healthcare systems. The full reasoning for the massive investment can be only partly explained by the need for civil defense preparedness for a war which never came to our shores. Perhaps the national will and events commingled to generate a public will to attack disease. Winston Churchill, then Prime Minister of Great Britain, stated this in his eloquent way in 1942:

> The discoveries of healing science must be the inheritance of all...Disease must be attacked whether it occurs in the poorest or the richest man or woman simply on the ground that it is the enemy (Bender 143).

The author believes it is safe to say that healthcare growth resulted from complex interactions involving both the public and the government. It is a matter of opinion whether the high GDP expenditures which have occurred are a crisis. Whether the society can continue to fund the system is a matter which must be treated with understanding rather than as a crisis.

There is no definite proof that the U.S. fascination with medical capabilities and willingness to utilize medicine is a crisis. There is no basic determining factor to isolate a cause of the supposed crisis, assuming there is one. In general, humankind has probably always held at least a fond wish that there is a way to live longer, healthier lives. The collective "we" may have chosen to invest in the better realization of that ideal over other social applications of resources. Money expended by the collective "we" is the focus of those who believe there is in fact a crisis. The dollars involved are the real focus of the debate. It is necessary to understand how the healthcare dollar is actually used in this country and in other countries with highly developed healthcare systems.

Chapter V

HOW HEALTHCARE DOLLARS ARE SPENT

In general terms, the U.S. healthcare system costs more for every aspect of care than European counterparts. This fact is, in general, undeniable. For example, physicians are paid more than physicians in other countries. An Organization of Economic Cooperation and Development table compared physician incomes as follows:

Table 3

Average Physician Income

Canada (1988)	$81,679
Germany (1986)	$86,704
Japan (1989)	$45,324
United Kingdom (1989)	$48,814
United States (1989)	$155,800

Source: Organization for Economic Cooperation and Development/Health Data, 1993 (Bender 40).

Physician income in the U.S. also grew in relation to the average wages paid in the U.S. One study on this was done at Harvard Medical School by two physicians, Steffie Woodhandler and David Hammelstein. It identified the ratio

of the physician reimbursement to the national average as 3.5 to 1 in 1941. By 1991, that ratio climbed to 6 to 1. (140). The study did not stop with wages. It also identified the costs incurred by physicians as out-of -pocket expenses of doing business. The aggregate total was $66.8 billion, or about 45% of their gross income (1991 figures). The aggregate cost of administration of the healthcare system as a whole was calculated to be $159 billion, or 21% of the entire cost of healthcare for that year (137).

There is no way to simplify the complex interactions of the healthcare system by isolating single items from the healthcare bill such as wages. The same study, based on 1991 figures, claimed that private insurers took in $241 billions in premiums and paid out $209.2 billions in benefits. $32.3 billions were expensed as overhead and $10.3 billions went out as the cost of administration of Medicare and Medicaid (137).

These figures do not give an accurate picture of the administrative costs given as a part of the business of healthcare. Administrative time by providers and suppliers, continuing education and retraining costs often are not reimbursed at all. Woodhandler and Hammelstein surveyed internists operating in the Harvard (academic) Department of Internal Medicine. This survey indicated that 18% of physician work is administrative rather than clinical (138). Administrative time is also a problem for all levels of healthcare which are involved in insurer reimbursement, especially where Medicare and Medicaid is involved. These costs are hidden in the overall aspects of care delivery, not isolated. This makes an accurate percentage figure impossible.

The primary goal of administration might be assumed to be increased efficiency in terms of services, or reduced incidence of waste, fraud and abuse. However, there is a growing public perception that the current system is accomplishing nothing with respect to these items.

> Physician executives are assuming larger, more complex job responsibilities within group practices, MCO's (Managed Care Organizations) and hospitals, according to the Physician Executive Compensation Report: A 1995-96 Survey and Ten Year Trends released by the Physician Executive Management Center (Tampa, Florida) The expansion of managed care is seen as the driving force behind this expansion of physician executives' responsibilities (Healthcare Financial Management 20).

The growth in administrative time, cost and effort is happening concurrently with a reduction in the rate of reimbursement at the provider level. Physician income, our original example, faces reduction despite increasing work pressures and an unproved case of overcharging if administrative costs are factored in.

There are many other factors in the healthcare equation which did not exist ten years ago. Many are involved in international corporate ties, network provider affiliations and operating agreements which pool resources of competing organizations.

The total amount of healthcare dollars absorbed in administrative costs is not calculated easily. Some experts use a figure of 24%. Other sources cite the 700 plus state laws and many federal regulations. Adding that cost raises the total

to over 50% and climbing. Between 1970 and 1991 the number of healthcare administrators increased by 697% compared to the overall increase in healthcare personnel increased only 129% (Bender 137). Despite this, clinical providers continue to devote more time to administration than ever.

The concept of savings through centralized administration and standardization of paperwork is based on an assumption that bureaucracy can be contained. This runs counter to the pattern of bureaucracy in historic context. It is the nature of government to increase administrative cost by imposing complex reporting and compliance procedures. The stated intent is to avoid waste, fraud and abuse. The unstated reason is, in the author's estimation. an effort to generate jobs, created solely to deal with the flow of paper in both the private and public sectors.

The context of the present discussion is that technology has made centralized administration cost-effective. Administration streamlining would free capital for clinical applications, permitting broader coverage for more people without a cost increase and without massive, increased taxation. Proponents of centralized control also argue that clinicians will be free to devote more time to the clinical aspects of care rather than paperwork. In theory, full time clinician focus on care would mean little or no increase in staffing to provide for greater caseloads.

Since the history of government bureaucracy runs counter to the predicted savings through centralization, the defenders of such an approach are the ones who must submit proof that they can produce the predicted results.

The precedents for increased centralization of any aspect of the U.S. economy has been a crisis such as a war or depression. The use of the term "crisis" becomes more clear in this debate. A crisis can generate support for major, unproved efforts to change the status quo. But it can only happen if the public will can be rallied behind the effort.

Exponents of centralized control argue that automation has made such management possible with reasonable staffing. The automation breakthrough which has made such predictions possible is called "compression technology."

Compression technology utilizes a data stream which is networked through a hardware integration. Such systems tag unrelated data, allowing access through various remote terminals and central systems. These systems have the capability of grouping together to create super files.

The concerns of many with respect to government application of this technology is that it is theoretically possible to link distinct file systems from other government agencies such as the Department of Defense, Department of the Treasury, and state and local tax and records systems. This process could then generate detailed dossiers on almost any individual within minutes. Anyone with access to the data stream might be able to do such records matches with little or no authorization.

Chapter VI

AUTOMATION AND MEDICAL DATA

The healthcare industry was an early beneficiary of automation and digital technology. The routine process of evaluation of individual data against standard measurements, norms, and tables was suited to the early applications capabilities of computers. Such automation has been a part of clinical laboratory equipment, radiation equipment and devices such as electrocardiographs (EKG's) and electroencephalographs (EEG's), for data collection, interpretation and storage. These systems were not usually engineered for compatibility with each other, or with follow-on technology. Almost none of the early systems provided technology to transfer data in encoded form to other systems.

More modern automated systems have developed some level of compatibility, for both practical industrial applications and to make production of such products easier. The federal government has increased it's regulations to force compatibility for certain types of automation. The Internal Revenue Service (IRS), Drug Enforcement Administration (DEA), and various law enforcement bodies have all played some role in formatting such guidelines for compatibility and access. These regulations do impact healthcare at various points. Specific integration of computerized systems for clinical records purposes is now underway, based on digital transfer compatibility. However, vast numbers of old but reliable systems are in use across the country which have no compatibility or transfer designs. Retrofit of all of these systems would be expensive.

The reasons for the lack of foresight are that progress in digital technology and automation far outreached that predicted by those who began the revolution. The concept that technical obsolescence would outreach the useful life of the equipment was not considered.

The data storage need of healthcare is more than numerical data. Much of it is observed and subjective information in the form of words. Digital storage of this type of paper is now practical. However, many hospitals and most physicians and other providers are still using paper and pen, hand written manuscripts. This mountain of material cannot be integrated into the automated systems except at great cost. To make things worse, it is usually stored indefinitely due to legal necessity.

If it is assumed that current automation systems have broken the barrier of limited storage of data, then the barrier to central access of health information becomes the entry of data into the data stream. This is necessarily a function of the providers at remote facilities across the country and even overseas. The cost to upgrade such providers to allow such interaction cannot be even estimated. Many providers continue to use only manual data records collection and storage. Few rural providers would be able to upgrade equipment without extensive financial assistance. Many marginal facilities in rural and central city areas cannot afford to maintain their existing systems.

While the actual compression technology capability is recent, some government and industry managers recognized the possibility of such advances about ten years ago. Studies began with the focus on the experiences of the most advanced systems in the healthcare industry as they adapted their own systems to

new technology. The bureaucratic nature of healthcare has been a stimulus for intensive application of automation to records, for economy of personnel, reduction of storage space, and increased accessibility.

Chapter VII

THE HEALTHCARE FINANCIAL MANAGEMENT STUDY

The following information was derived from an article published in September, 1996 by Ms. Wendy Herr, FHFMA, CMPA, CMCP, entitled "THE BENEFITS OF DATA INTEGRATION: HMFA STUDY FINDINGS" (Healthcare Financial Management, September 1996, 52-58). This study was commissioned by the Healthcare Financial Management Association and conducted by Abt Associates, of Cambridge, Massachusetts. The goal of this study was to evaluate the current state of data integration in the healthcare industry. Since the healthcare business incorporates all types of automation, the study created four broad groupings of systems to address. These were:

Table 4

Healthcare Systems

1. Business Systems
2. Clinical Systems
3. Operational Systems
4. Planning/Analytic Systems

Source: Herr 52

Participation was solicited from a broad cross section of the healthcare industry ant the "high end provider level" (52). Those offered the opportunity to

participate were selected to provide a geographic cross section of the U.S. and represent varied types of healthcare provider networks. They were:

Table 5

Healthcare Provider Networks

Baylor Health System, Dallas Texas
Duke University Medical Center, Durham, North Carolina
Fairview Hospital and Healthcare Services, Minneapolis, Minnesota
Friendly Hills HealthCare Network, LaHabra, California
Group Health Cooperative of Puget Sound, Seattle, Washington
Harvard Pilgrim Healthcare, Brookline, Massachusetts
Sanus Health System/NYL Care, New York
Sutter Health/CHS, Sacramento, California
Tufts Associated Health Plans, Waltham, Massachusetts
United HealthCare Corporation, Minneapolis, Minnesota
Vanderbilt University Medical Center, Nashville, Tennessee
Henry Ford Health System, Detroit, Michigan

Source: Herr 53

These represented the best overall systems with respect to use of automation for data integration. The study results rated the level of systems integration for the four areas listed above. The overall aggregate was:

Table 6

Systems Percent Integrated

Business Systems	87%
Clinical Systems	35%
Planning/Analytic Systems	20%
Operational Systems	0%

Source: Herr 52

Business Systems included payroll, billing and other related business functions. Clinical Systems included diagnostics, treatment equipment, automated patient monitoring devices, and other patient treatment tools. Operational Systems included systems used to track patient activity and service utilization such as admissions and scheduling. Planning/Analytic Systems are used to track utilization trends, therapeutic outcomes, demand forecasting and other statistical information.

The study consisted of on-site interviews with CEO's, CFO's and key executives, on-site surveys and inspections. The comprehensive evaluation resulted in a further selection of three systems for intensive study. These systems were selected geographically and were chosen based on scores indicating the highest level of Integrated Digital Systems (IDS) based on objective criteria. Geographical selection was from three longitudinal regions; East, Midwest, and West Coast.

To help the reader understand the magnitude of the healthcare industry and of the problems evaluated in this study, the statistical data for the selected

institutions has been included. The term "lives" refers to the number of individuals covered by the system. Other terms are self-explanatory. All data is for 1995. This was the most recent available information at the time of the study. There are differences in the organizational structure of each system, but these do not represent a concern for the systems analysis. The selected institutions were:

Table 7

Healthcare Institutions

Harvard Pilgrim Healthcare
1.1 million covered lives
$2.1 Billions in 1995 revenues
16,000 physicians
110 hospitals
One of the first hospital systems to win NCQA accreditation
Henry Ford Health System
550,000 covered lives
$1.7 Billions in 1995 revenues
1,000 staff physicians
16,000 employees
Received first (1994) NCQA Award
Group Health Cooperative of Peugeot Sound
640,000 covered lives
$1.1 Billions in 1995 revenues
1,000 Staff physicians
10,000 employees
One of the oldest HMO's and the first to issue HEDIS report cards

Source: Herr 53

The study made on-site interviews targeted to common themes and areas of agreement. The target institutions are assumed to represent the best operational ID systems at the time of the study. The study is assumed to be a predicator of trends in IDS taking place throughout the industry at a slower rate (53).

One point of the study was to identify how each system dealt with common problems. It is interesting that all three claimed to have fallen short of their goals despite the fact that they were considered industry leaders. A national agenda of a consolidated and centralized healthcare system would be monumental compared to these large provider networks.

Table 8

Identified areas of agreement included the following general areas

1. A cross functional team is critical to success
2. Organizational values and mission must be clear
3. Must focus on core business and critical needs
4. Solutions cannot be imposed from above/end users must be involved
5. Staffing & budget must be sufficient to insure implementation and support

Source: Herr 54

It should be noted that all of these points contradict any effort to impose systems changes on the healthcare industry using government regulations or requirements as a part of a national system. The input of key players such as the

American Medical Association, The American Hospital Association, and other healthcare organizations should not be ignored or minimized.

Table 9

Identified areas of widespread disagreement or variations in strategies

1. Should a system transition dramatically or incrementally to DI?
2. Should a system continue to change if technical obstructions are discovered?
3. Should a system be designed more for current needs or future possibilities?
4. Should design planning seek consensus or proceed despite opposition?

Source: 55

These same issues should be kept in mind when the creation of a national data base is considered later.

Finally, the study attempted to seek general advice these institutions could give to those investing in IDS. There was a clear agreement on certain key points about lessons learned by these pioneering institutions. These same lessons might apply to any government system.

Table 10

IDS Inventment Lessons

1. Buy system software, don't build your own
2. Avoid software which requires customization
3. Focus on clinical, not financial systems

4. Develop close relations with vendors

Source: Herr 54

In addition, no agreement was possible on certain points. These were:

Table 11

Points of disagreement

1. Whether or not to leave "Data Islands" outside the network
2. Whether to task the project as a continuum or to use incremental staging

Source: Herr 54

Ms. Herr made an observation that the study pointed to a focus by the systems targeting ambulatory care processes rather than in-patient processes and on developing comprehensive order entry systems (54).

The author was impressed by the lack of IDS in the most advanced systems in the U.S. It is clear that only a small step toward integrated systems has been made. These large systems incorporating large numbers of people to operate and to serve, pale in comparison to the numbers involved in a national data system. The author questions whether the federal government has the ability and talent to utilize the lessons learned by others in relation to systems integration.

The information from the Abt survey was extracted from the Journal entitled Heatlthcare Financial Management dated September, 1996. The article, entitled "The Benefits of Data Integration: HMFA Study Findings" was written by Wendy Herr. Ms. Herr is Vice President of HFMA Washington Office Group, Washington D.C. _

The problems of data integration are being addressed at the Hardware and software level by standardization of certain aspects of design. The Federal Government is playing a major role in this process by both regulation and through international agreements. Mr. Bill Minor, a student involved in research of the Clinton Initiative proposed to but rejected by Congress, made an effort to pinpoint some of the areas of concern to the healthcare industry which were incorporated in this proposed system. One issue Mr. Minor recognized was the need for data links between systems and various providers. The use of standards which mandated certain on-line capabilities and compatibility across competitive lines would be beneficial and could generate a natural process of systems integration.

> A significant implication of this requirement is its stimulation of the medical community to adhere to standardized data elements, interconnectivity hardware and software requirements, paving the way to enter the information superhighway (Minor 1).

The process of evolutionary integration of data systems as new technology enhances the capability to do so is probably inevitable. The possibility of whether a data system initiated and structured by the federal government on a timetable is

another matter. The question of whether such a system can be created in a short time with reasonable efficiency and cost is open to doubt.

The real question is whether the political system can involve itself in a way that stimulates advancements in technology by setting goals which are beyond the current rate of technology advancement. In the past, the answer has been usually yes. However, the current rate of change is far greater than at any other time in history. Technical obsolescence of highly expensive systems is a major problem with respect to current needs for automation upgrade due to this highly competitive field. Government stimulation of even more rapid advances could actually increase costs to consumers.

The current healthcare system as a whole is stressed as a result of the information revolution. Some portions of the healthcare system are already unable to meet the current rate of change at all. The most exposed caregivers are those in rural or inner city settings, where income does not provide the capital for retirement of functional but automation limited methods of operation. It is doubtful that the federal government will be able to bridge the cost of upgrading every provider. It is not likely that the government will be able to replace the loss of healthcare providers if they are driven out of practice by unrealistic demands on the provider who lacks automated systems to meet those demands.

Chapter VIII

GOVERNMENT STUDIES REGARDING THE STANDARDIZATION OF INFORMATION

The Health Security Act of 1994 as proposed by President Clinton was not entirely new in purpose or design. It was in part a continuation of a planned process of government guidance for healthcare in the U.S. The government concerns about the acquisition, storage and access to health information is not new either. It has been a part of government studies for at least the past ten years.

Bill Minor made a review of information systems analysis by the government and identified much of the Clinton Initiative groundwork as originating in workgroups commissioned in the recent past. He believed that the information control aspect of the bill was significant, but hidden by the complexities of the entire document.

Two workgroups identified by Minor were commissioned by then Secretary of Health and Human Services Louis Sullavin M.D. They were the Work Group on Electronic Data Interchange (WEDI) and the Work Group on Computerization of Patient Records (WGCPR). These work groups evaluated the current state of medical documentation and records storage and submitted their reports in 1993. These work groups enlarged on earlier work which focused on one aspect of the medical information issue, that of personal privacy with respect to medical information.. These reports were the Privacy Protection Study Commission Report, "Personal Privacy in and Information Society" and a National Bureau of Standards Report, "Computers, Health Records, and Citizen

Rights." These materials were used as a foundation for the Clinton Initiative with respect to the demands the initiative would make
with respect to automation and medical records access (Minor 1).

The mountain of medical data on file has always been a major barrier to any national records system for healthcare information. The Clinton Initiative took a bold step by making an assumption that the state of automation is such that this barrier can be breached, at least in theory. The initiative focused more on the problems imposed by the system rather than the problems of initiation of it. The ability to create the system, once the end of the discussion, is now only the beginning.

Chapter IX

SOLUTIONS SUGGESTED BY THE CLINTON INITIATIVE OF 1994

The Clinton Initiative of 1994 was a comprehensive healthcare proposal which would, if passed, have acted to guide the process of centralizing the administration of healthcare in the U.S. It did not establish the details of how this would be done. That would require follow-on enabling legislation. However, the general direction of what followed would require adherence in principle to the guidelines of the legislation.

Much of the automation related material was based on the WEDI and WGCPR reports cited earlier according to Mr. Minor. The critical tool for making the technology practical was one particular tool in common use today...The "smart card."

Smart cards are similar in appearance and use to the credit and debit cards with which we all are familiar. The card would require two elements to be practical in the way proposed. It would require a unique operating number code and a data stream open to access using that code (Minor 2).

Even these essential components of the system are controversial. The ID number resembles the much cherished and maligned goal of some in government, the National Identification Card. The addition of specific identifiers such as fingerprints and pictures, probably a necessity to reduce fraud, makes the fears harbored by opponents to nationality identification devices even more resistant to

it's use. Yet, it is doubtful that without means of positive ID, the system would be trusted by the general public.

The cost of establishment and maintenance of such a system has been calculated by various organizations, none of which are close to each other with respect to the final figure. The Clinton Administration used offset savings as the system was put into place to reduce the estimated cost. Others apply various numbers related to management savings. No firm totals have ever been tabulated. The Department of Health and Human Services, obviously supporting passage, stated that they estimated savings throughout the healthcare sector to be 100 billion dollars per year "if the system were imposed by the year 2000" (Minor 12).

Some benefits from a system which accesses all health data would be to create research on-line. Such methods are used within healthcare network providers on a routine basis. This kind of activity would generate financial benefits by directing care to the most cost effective options. It could also reduce the cost of development of new drugs and therapies by providing data without the need for extensive controlled studies. White House Domestic Policy Council proponents also emphasized the system could identify fraudulent activities (12).

According to Mr. Minor's analysis of the Clinton Initiative, the system would work in much the way a bank transaction does today. The smart card would provide access to care and upon surrender, constitute a right to access the data base for medical information. Similar surrender to the police during an investigation was not discussed. However, it would probably be similar in legal

terms with respect to Constitutional law. The following abstract from Mr. Minor's work provides a specific analysis of the proposal.

> The Health Security Act of 1994, Subtitle B, Section 1, details how the health information system will be developed and implemented as part of the National Information Infrastructure Act of 1993. It describes what data will be collected and what its purpose in the healthcare system will be ... Another element in Section 1 deals with establishing a unique identifier for each citizen. Use of the identifier to provide linkage to other sources of data will be prohibited except as the National Health Board (NHB, a proposed new regulatory body) shall permit. Subtitle B, Section 2, delineates certain standards for the privacy protection of "Individually identifiable health information" (Health Security Act of 1994, 856). It specifically lists conditions which disclosure of information about enrollees (under this act, all Americans) in the system is authorized. (1) by the enrollee, (2) as authorized by the enrollee in writing, (3) to federal, state and local law enforcement agencies, or (4) under conditions described by the NHB. Other provisions are defined for minimal disclosure, right to know, risk adjustment, required safeguards, right to access, right to notice, use of a unique identifier, and duties with respect to research and education (Minor 13-14).

The purpose of this part of the Clinton Initiative is to consolidate record keeping to ease management of health related matters for both the government and certain outside agents with need to know. Particular groupings with such right of access would include research organizations, pharmaceutical companies and educational institutions. This kind of data base could, using compression technology, streamline studies on relative effectiveness of treatments, interactions of various medications, and grade performance of individual providers or entire

systems, weeding out substandard performers. There is some fear that the same system would also limit care options based more on cost than effectiveness. The options for treatment then might vary based on demographics, diagnosis, prognosis and statistical methods.

The basic issue to consider is whether such comprehensive methods of data acquisition are necessary to achieve the goal of better healthcare, access to care, and avoidance of waste fraud and abuse. The purpose of such a data systems not be what it appears on the surface.

Chapter X

IS A UNIVERSAL AUTOMATED HEALTH SYSTEM PRACTICAL?

The nature of complex systems technology is to reveal limitations only after being implemented. In addition, such complex technology has high up front costs to implement. Complex failures do tend to teach lessons because of the losses involved. The concerns about the implementation of such a huge jump in technological application is that it might not succeed. The time and effort, resources and confidence one puts into such a project does not occur in isolation. It drains resources from other projects, usually more manageable in scope. The process must be considered as a tradeoff for other projects. Any gains must be weighed against gains that alternatives provide.

The Federal Government is notorious for imposition of change with little or no public discussion. Indeed, the change often operates through bureaucratic regulation or court action to evade the political process. One such device was mentioned by Mr Minor.

> One organization which has capitalized on demand for medical information from insurance companies is the Medical Information Bureau (MIB). Unheard of by most Americans, MIB receives health status information from virtually all insurance companies. Whatever can be gleaned from applications, health records and claims is fed into their computers. This huge database on over twelve million Americans is then used to make underwriting policy decisions.

> Concerns about this information and possible links to other data banks are heightened by the advance of technology (Minor 6).

The need for public and interested party involvement must be a part of the process from the beginning. The Clinton Initiative attempted to reduce friction by a policy decision to exclude many parties with interests in the healthcare debate. The legislative initiative was a failure, primarily because of fear.

U.S. Representative Gary Condit (Democrat, California) introduced a legislative amendment to the Clinton Initiative even before it was considered by the House. He was trying to correct what he felt were lapses in the protection of personal privacy. This bill attempted to attach severe and defined penalties for breaches of confidence whether by personal knowledge or through access to electronic sources. His bill was entitled the Fair Health Information Practices Act. Mr. Minor made the statement that:

> Supporters of Condit's bill acknowledge similarities with the President's proposal but laude the fact that Condit's can be implemented concurrently with health reform legislation whereas the President's would not kick in for three years (Minor 14).

This author has not seen the specific portions of the Clinton bill which referred to this aspect of privacy. However, certain aspects of it are common knowledge in healthcare related businesses. The automation component is

understood to be the central feature to provide cost savings over time. This is the economic engine that is intended to pay the freight for the more costly parts of the proposal.

The individuals who will see the effect of implementation of any system of government management or control are the executives of the major providers of care in the U.S. These individuals must develop and operate systems which conform to the law. They also bear the burden of answering to the stockholders, employees, and users of their systems.

The author obtained several interviews which approached aspects of such changes in the healthcare industry with those who would be expected to face the challenges imposed. The focus of each interview was on the areas of expertise each would be required to use to address the problems. The nature of these interviews was conversational and the material is a result of notes. No portion of any interview was taped. The approach did not rely on a question and answer format, and was conversational in style.

Chapter XI

INTERVIEW ONE: EXECUTIVE MANAGEMENT OF A LARGE MANAGED CARE NETWORK

(Interview held in summer of 1996, Suburban St. Louis Co., Missouri)

This individual has held a variety of executive positions prior to his current one. The company is a major healthcare provider both locally and nationally. The system recently became for profit and is intimately involved in the national healthcare debate as both interested party and expert witnesses.

This conversation centered on the condition of automated systems at present and the ability of automation to change the face of the healthcare system. This individual gave pointed answers to direct questions. He was clearly skeptical that there was no easy way to institute major automation of healthcare files.

He believed his system represents one of the more advanced automated data bases in managed care. This file consisted of current and past files numbering in the millions. He was able to point out that his system was nothing compared to the 280 million plus individual files that a national data base would require. His own problems were the constant lag in data entry and the 2-3 percent error rate in the entered data. Errors could range from simply stroke errors to fraudulent and misdirected claims. Failures in submission of data was also a problem. Additional problems such as on line scrambling, systems crashes and similar occurrences means that all of the electronic data must be backed up by both electronic and paper methods.

How the government could ever generate a reliable system with a low rate of error and sufficient reliability to eliminate perpetual paper backup is beyond this individuals belief. The systems people will tell you that no system is capable of handling vast amounts of data without risk of lost data. No electronic data transfer could be free of methods of committing fraud. The larger the system, the more likely it is that errors will be perpetuated and multiplied. He must do regular and vigorous auditing to insure data reliability. This aspect of electronic data is, in his opinion, absolutely essential. The government has always shown to be weak in this aspect of their systems.

He does not believe that the current systems in various government agencies have the means to accurately maintain even birth and death records, as many dead continue to receive benefits long after their demise. The addition of millions of records which incorporate minute details of medical care would exceed any problem faced in the current systems many times over, multiplying the error rate many times over.

He was very skeptical of the ability of government systems to apply smart card technology in a way that would reduce or stop fraud. He knew of no technology which would be constitutional that could provide reliable identification. Even complex methods can be fooled or forged. The application of literally thousands of remote terminals provide incredible opportunities for accidental or intentional corruption of the data and identity system. The Government system relies almost totally on data submission at point of care.

Without assurance by the government that the data of that system is reliable, every provider will continue to store the same data as in the past. The

government will never be able to give reliability sufficient to allow legal destruction of private healthcare files. The savings aspect of the government system is a myth.

Privacy issues are a problem for the private provider. There is no foolproof method to block all problems as long as people are linked to the process. The system has methods of control which are possible mainly because the number of terminals with access are limited. Direct access to the system is by employees and they can be identified along with the data they have accessed. The government is not proposing any similar restricted access. Every disgruntled person with a means to tap such a system could disrupt the integrity of the data. Such disruptions are unlikely to be caught or corrected without armies of auditors and other employees.

This individual believed that the inherent risk posed by unlimited numbers of computer terminals and uncontrolled numbers of individuals who could gain access would be an impossible security situation even with any advances in smart card technology. Since the integrity of information is especially critical in this proposed system, the prospect of uncompromised data with secure access limits is not logical.

One additional feature of concern is the cost of both software and hardware to establish links with the system. Many providers do not currently have any on line system. Some cannot afford the added cost of telephone connections. The worst case situation would be a continued process of mandated upgrades which have to be remodified over short periods of time to fix the system flaws. The inevitable result is the risk that marginal service areas will cease to be

served at all due to upgrade cost demands by government. Even large providers might be forced to limit service sites.

Interview one felt that the main advantage of managed care systems was not the database itself. It is the established information about particular cases managed over time with human interpretation of the data. Personal involvement makes continuing fraud difficult. It also makes isolation and correction of bad data easier. Any total reliance on automated data would be a mistake.

This interviewee believed that the best option was for a realistic timetable toward standardization of software and hardware as well as standardized report forms. There should be increased interaction across provider networks. Technological improvements would make such changes cost-effective, as normal attrition would absorb part of the cost. This process could be supported by existing networks, perhaps with the addition of the marginal facilities currently unable to participate in such networks.

The author believes that this interview focused on the individual as a strategic planner, focused on the cost-benefit ratio and the ability of the package to deliver what it sells. The ability of the current technology, and even the still unproved future technologies, to perform as some have advertised has yet to be demonstrated on any scale. If he were looking at this system to purchase, he is not sold on it. The smart card technology has similar flaws, calling into question the security and integrity of data. Failure has the possibility of severe legal liabilities. Again, the product has not been sold to his satisfaction.

This individual favors a process of transition to a system which utilizes existing data collection and storage with progressive upgrades over time. The

process would not cause any drastic expenditures and would draw benefit through expanding what works. The savings to this system is a factor in the ability of the overall healthcare system to absorb new technology. It should not be viewed as simple obstruction of progress to save dollars.

This individual appeared sincere in his efforts to create a clean data bank with timely data and a maximum of integrity with regard to access of the stored data. There may be problems inherent to any large system which cannot be completely solved. His impression was that as new tools can produce better results, they will be incorporated.

Chapter XII

INTERVIEW TWO: CFO OF A MIDWESTERN HOSPITAL

(Group interview with CFO, Automation Systems Executive Officer and Automation Systems Specialist of for-profit corporation with facility in St. Louis, Missouri, Spring 1996)

Interviewee number 2 was an officer of the parent corporation given responsibility to bring a newly acquired hospital facility on-line and under operating procedures of the parent corporation. This global system ranks number two in the U.S. market. The facility in question is based in the inner city and carries a largely Medicare and Medicaid dependent elderly and poor case load.

The parent company was upgrading automation over the past two years at this facility, including compatible hardware and software, on-line reporting to the parent corporate offices, and on-line reporting to meet federally imposed requirements for Medicare and Medicaid using digital data.

The interview of these men was conducted on more of a question and answer basis. There was time pressure, and the interviewees gave terse replies to direct questions. No recording of the interview was made, and only scetchnotes were taken. All of these men were familiar with details of the Clinton Initiative.

The question of whether a healthcare superhighway was practical was answered in a discussion format. There was a difference in responses based on

the focus of each individual. The data processing professional was more skeptical about the progress of technology than the administration-oriented executives. All three were optimistic that some changes would benefit all involved.

The internal system utilized by the hospital was organized to report in a data stream to the corporate headquarters, and provide digital data to the government reporting system through tapes as required under current regulations for such facilities. The parent corporation has been upgrading through a systematic obsolescence and replacement process over time. Many changes have involved software rather than hardware.

The concept of a single source data system which promotes on line access to health data for claims ajudication (eligibility for services) and medical history was discussed at some length. The kind of system this author presented was described first as a data stream and second as a replacement for existing data storage requirements.

We discussed the possibility of a centralized data system which would serve as a permanent legal repository for medical information. This system would be on-line accessible and would be updated concurrent with the delivery of care. The response given was very pointed and precise..."Where do I sign up?"

Even the prospect of subscriber fees and various access charges were no deterrent. The CFO was clear that this kind of comprehensive and reliable system would be treated as indispensable in the cost of doing business. It would be impossible to operate from a liability standpoint if such a system were built and proved to be reliable.

Alternative proposals to the Clinton Initiative were presented. One possibility was to have personal subscribership to various data systems which would operate much like long distance telephone systems. They would interact directly with each using a process similar to that used for credit card purchases. Such systems could be paid for through access or subscriber fees. The data system could be set up as a general record system with basic information without any extensive new technology. It could, at least in theory, act as a method to track health services utilization by individuals. Whether it could serve either as a general medical records depository or assume the role of directing medical care (with incumbent liabilities in event of injury to a patient or improper disclosure is not known.

These individuals felt that such a system would be of immediate benefit, especially if it could provide on-line benefits analysis (ajudication of eligibility). The system would be practical for rapid access to basic information useful in emergencies. There was concern that this, as with other systems, would not be able to be current with information such as current medications and comprehensive medical history. Such gaps in information would limit the reliance which could be placed on data and especially on it's use as the permanent repository of medical data.

The issue of whether any diagnostic and treatment options performed by a system would be good or bad was discussed. This process utilizes computer generated diagnostics and treatment based on stored characteristics of the patient and the diseases the diagnostics of that patient indicate. This kind of system can then attach data about the known treatment options for that disease process, even

giving medication dosage based on body weight and age. Such computer diagnostics are not new, having been incorporated into task specific tools such as electrocardiograph machines for some time. The specific application of matched information for treatment of a particular person is under development and will be discussed later.

These individuals saw such tools as a means to direct patient care, but not to dictate a plan of care. The concern that treatment might become directed by a protocol data base is not a hospital administration issue, especially if the protocol would relieve the hospital of liability for misdiagnosis or ineffective treatment if the protocol is followed.

The use of a master system to evaluate the performance of facilities and practices based on outcomes for patients was also discussed. The focus here was whether the use of a data base for outside performance audits should be done, and whether such information should be released to the general public.

The panel did not indicate that they had any difficulty with such a process. The concerns were that the data be complete and objective (that is, not adjusted to meet subjective goals), and that there be no encumbrances on the facility with respect to their actions to correct deficiencies revealed by the data.

The CFO was quick to point out that the parent company would not hesitate to use this kind of system to target and make corrections on weak links, whether that be physician performance or that of an entire facility. Quality control is difficult at best. However, there was concern that data might be altered or hidden to protect some members of the medical community for political or social purposes.

The support of this use of the system is strong, but conditional on the basis of whether it is used without prejudice or encumbrances. In other words, if the medical system can act to apply the knowledge gained to become more effective. The ability of the federal government to apply such information unencumbered was clearly in question.

The interviewees closest to the practicalities of automation both were doubtful that the ability to completes a national data base is within near-term possibility. On the question of reliability and fairness of application, there was no consensus that the federal government would or could operate free of political encumbrances.

Chapter XIII

INTERVIEW THREE: EXECUTIVE OF A LARGE HOSPITAL EDUCATIONAL SYSTEM

(In person interview in St. Louis Missouri, July 1996)

This interview was conducted with an executive of a large medical facility with a medical education affiliation. She has had experience with both the automation of medical data and the integration of automation with clinical functions in this hospital system. This system has undergone rapid change as a result of healthcare restructuring. It has not kept pace with the most advanced system described in the Abt Study. The author did allow this individual time to review the information included in that study before the interview session. Only sketch notes were taken, and the interview again was based on a question and answer format.

The most significant area of discussion for this individual was the application of centralized data to tap proprietary information about research, and to evaluate the performance of a particular hospital or system. The major difference in her response was her view of how the educational organization with flagship responsibilities differ from other systems such as the one previously discussed.

University systems are not inclined to support public evaluation of institutional performance. Such evaluations tend to be biased against such hospitals because they take on more difficult and exotic cases as a part of medical

research and training. The impression of unfiltered data would be that university systems are less successful at treating many conditions. If efforts to balance the data were put into place, it would be viewed as bias toward the large and (politically) influential systems. The same concerns apply to the physicians and surgeons who work in these institutions. Simple evaluation of successful outcomes is not the whole story.

The author used a suggestion given by a colleague and questioned the proprietary concerns of the research institution. Proprietary property is a broad category of materials which are commonly protected in much the same way as copyright protects written material. The concept of proprietary material may range from the precise DNA structure of a cancer cell removed from a patient to the effectiveness of a particular drug protocol for treatment of a particular disease. This concept is basic to ongoing competition in the U.S., as it permits companies to seek new ways to solve problems and then gain the benefit of this effort.

The interviewee stated that proprietary information could be in jeopardy by the use of data extrapolated from an on-line data base. This kind of industrial spying might involve local or even international competitive organizations and governments. Even the outcomes of particular procedures could be considered compromisable in terms of proprietary property. More important is the application of the data base to circumvent research by such institutions altogether.

Grant funding has been a major revenue source for medical schools in the U.S, although there has been a shift in the percentage of income derived from that source due to increased revenue from patient care. The greatest growth has come

in the area of Medicare and Medicaid. I acquired data to support this point, and it stated as follows:

> Based on 1995-96 data acquired by the Medical Group Management Association, Denver, Colorado, "...patient care constituted 57% of clinical science department's revenue in 1995 compared to 52.9% in 1992. The university or medical school contribution dropped from 14.7% in 1992 to 8.9% in 1995" (Healthcare Financial Management, 20).

Despite this, the research component has retained a high profile, high prestige effect in the medical community. The university name is linked to the research done by the university medical center.

Any effort to build a replacement of research currently carried out by medical institutions is a problem. If the data base is used for retroactive studies and comparison of treatment protocols, it could undermine the development of improved treatments using more traditional methods of evaluation. There is a good chance that automated data research could become a method to short-circuit promising protocols based on outcomes which fall short of other options in the beginning.

The use of protocols based solely on research derived from automated systems could limit the treatment options by physicians, especially if the options become institutionalized by insurers or government payers (Medicare, Medicaid, Champus). The liability factor would kill promising procedures which do not conform to the computer generated model.

The university research facility has a heavy investment in both human and physical plant costs. The flow of information in the research organization is complex, and extends throughout the entire research universe. Any change which effects one area such as university medical research funding could have a ripple effect, injuring the entire national research effort.

This spokesperson was not optimistic about the future as far as patterns of care. She believed that the government was limiting development of some treatments by selecting and supporting cost-effective standardized options. The government-directed patterns in Medicare and Medicaid would lead us to this outcome regardless. Research would continue to be funded both to check the data obtained by various methods and to develop promising data. Prestige would continue to play it's part as well. She felt that funding would continue for the same reasons as it gained popularity in the first place...the search for longevity and good health.

She felt that research itself will become more narrow, more focused. It may hurt the breakthrough discoveries we have come to expect. But the system will adapt and continue. The political influence of the major university research facility is enormous. The public relations from such facilities is also able to generate popular support. When this is combined with personal networks in the community, the university system is formidable and able to look out after it's own interests.

Chapter XIV

INTERVIEW FOUR: MIDWESTERN PRIVATE PRACTICE PHYSICIAN/HEMATOLOGY ONCOLOGY

(Telephone interview in St. Louis Missouri, Spring 1996)

This physician as been practicing in Iowa for his entire professional career. He has a large business and is associated with a university system for hospital support. This interview was conducted by telephone for about three hours. He was a willing interviewee and gave candid response to pointed questions. He freely offered information which he felt was necessary to understand the perspective of physicians in this debate.

The major issue which concerned this physician was the change in the role of government from payer and policeman to director of care. This change has happened at a time when progress in his area of practice, cancer treatment, appears to have stalled. He continues well connected with research at the university, and is noted for the work he has done in his area of specialization. For these reasons, his comments about research are significant.

The issue of a national healthcare data system is not in his area of expertise. He has a computer for home use, and all business files are on a computer system. Both are capable of linkage with an on-line data system. Such links require software and on-line fees. He currently has Internet access and can

be considered typical of most major physicians with respect to business organization, clerical assistance and business expenses.

The focus of the discussion about on-line data streams was whether the added cost would be passed through by higher reimbursement fees for Medicare and Medicaid. The concern is that added cost to providers could reduce the operating margins of the business such that it would cause a need to scale back or even close the practice. Like many physicians, he has investment income. The income from his business has been squeezed over the past five years by added business costs and a flat reimbursement schedule. He had reason to question whether the expansion of government mandates would be the end of independent practices such as his.

The current structure of Medicare and Medicaid and expansion of these systems to include more patients would eventually lead to his early retirement. Most new physicians enter the healthcare business in debt. They cannot afford to buy a practice, and cannot start a small practice. The large provider networks hire such physicians as employees, and provide the necessary service facilities and staffing. This further limits and structures healthcare in the kind of large system the government seems to favor. This process would be hastened if the cost of doing business continued to make smaller organizations unprofitable. This physician is concerned that his practice, linked to many rural practices acting as primary care sources, would be eliminated.

This physician felt that monitoring and statistical features which could come from a national data base would not pose a threat to him. He was doubtful that any system would be applied to weed out poor performing facilities or

physicians. However, he would welcome this if it were possible. Many physicians are doing procedures with inadequate training. Others are not competent to treat some diseases and need to be encouraged to refer such cases. Any good data base should be able to isolate poor performers and require upgraded skills or even ban on certain aspects of practice a result of knowledge gained. The problem is that many old and well placed physicians are the ones most at risk of exposure. University based facilities are similarly often well placed politically and are unlikely to permit error rate disclosure.

This interviewee was clear that the current situation in healthcare has monitoring systems in place already. Physicians are rated by various existing arrangements by both government and private payers. This process could reveal more than any system which shows only malpractice claims and settlements. Yet, such existing systems are not generally utilized in such ways.

The application of systems which target treatment options has a mixed review. Any good physician would welcome assisted diagnostics and suggested treatment plans based on automated analysis. But all good physicians also recognize that medicine remains an art as well as a science. The response of each individual to treatment is often not in accord with the norm. The concern is that assisted diagnostics and treatment from automated systems might become directives. The selected options might be appropriate, selected for their success over alternate treatment options. They might also be selected for cost-effectiveness. This also is not bad. The fear is that the government might use cost-effectiveness over success in treatment of diseases to deliver care at a desired cost.

Another factor is that automation will have the same effect on care as the Drug Enforcement Administration (DEA) has on pain control. This physician, an oncologist who deals with painful medical conditions, is well aware that the DEA will target his practice and threaten his profession and right to prescribe controlled substances based solely on automated audits of prescriptions. The ability of the physician to address pain control is adversely effected to the detriment of patients by such heavy-handed and relatively mindless attitudes which seek to limit the illegal use of prescription drugs. Expanded automation reviews should give new reasons to alter patterns of care.

The author explained that a national database could be much more specific than existing systems in general use. The entire medical history could be analyzed and treatments such as dosage and intervals of medications could be optimized for best effect while reducing side effects and untoward reactions. The interviewee agreed. The issue is one of whether the government would allow such a system to operate to best effect. Two issues related to this require some background.

Pharmacological equivalence is a term used for medications which have identical chemical structures and have the same qualities in terms of action and side effects. The common application of this term is brand name product in relation to generic products. Use of generic pharmaceuticals could save vast amounts of money if applied to large populations.

Physiological equivalence refers to two different chemical structures which accomplish the same physiological result in a person. The products have the same effectiveness. An example of this type of comparison is the antacid

product Zantac and it's pharmacological equivalent, Tagamet. The generic equivalent of Tagamet is cimetadine. Cimetadine is chemically identical to Tagamet. Zantac is a distinct chemical structure. All three are considered physiological equivalents.

A physician often has reasons to give one medication in preference for others. It may be subjective or a result of past experience. Sometimes, it is a result of better selling by the product manufacturer.

The concern about this topic lies in the difference in cost. A generic is often less expensive than a brand name. At the same time, not everyone agrees that these effects are in fact the same. The reasoning for this may lie in preservatives or binders in each product, quality control by the manufacturer, or simple brand preference. There is also the issue of the manufacturer as a resource for research and development.

Research and development are often carried out by brand name pharmaceutical companies through their own facilities or by paying laboratories to conduct research. The return on investment used to be covered by the exclusive sale of the brand name product for a set period of time. The current cost of the research required by the Food and Drug Administration has increased, and the time for recovery of cost has narrowed. As a result, the pharmaceutical manufacturer which conducts research and development argues that they must continue to take a higher retail margin on current medications to underwrite ongoing research.

Some in the government and private sectors do not believe that the difference in cost goes to research and development, especially when generic

manufacturers start producing the generic product. These individuals favor mandatory substitution based on price as a form of cost control. They also tend to favor continued reduction in the exclusive production benefit provided to the developer under law.

The concern of others is that the use of data bases to automatically substitute pharmacological and physiological equivalents is the effect it would have on brand name research and development (R &D). Such targeting provides disincentive to new product development. The effect could be a drop in R &D due to decreased available funding to support such work. For the cancer specialist it could mean a near freeze in treatment development in the U.S. and a continuation of ineffective, costly and painful therapies.

There is general agreement that the elimination of less effective medications and the targeting of cost effective medicines would provide savings throughout the medical system. The brand name product would be forced to meet the prices of competing products or be eliminated from the marketplace.

The complexities of the healthcare system, and the interaction of the healthcare sector with other parts of the U.S. economy are exposed again. Political interference could result in favorable targeting of a particular product or even the elimination of competing product or manufacturers. The data stream could be manipulated by those wishing to tilt the results of outcomes for politics or profit. This interviewee felt that the use of a data base to effectively apply medications to the benefit of the patient was good. He felt that the issue of fairness is essential. Again, there was doubt that political interference could be addressed to a reasonable level of satisfaction.

This physician felt that treatment, medications, medication protocols, could all benefit from on-line evaluation of data from active and former patients. Cost effective application of resources would benefit everyone who pays for health insurance or medical services. However, These same results could be obtained by much smaller and less costly systems. In fact, this kind of thing is done within managed care systems now. Access to the data is the current problem, not the numbers. "Show me something new."

Another area of concern is that the pharmaceutical manufacturer, especially the name brand company, gives physicians the necessary information to use new products effectively. Changes in the existing system could curtail the detailing of products, slowing the application of new medications. The retroactive research data derived from a national system would take a long time to obtain information on new product, thus favoring the old. The result could be a chilling effect on use of any new product which might be introduced.

The interviewee was also not impressed by the addition of a new government agency to dial with the information aspect of the health bureaucracy. The Medical Information Bureau (MIB) would probably become another layer of bureaucracy on the healthcare provider. Such new agencies will likely add another series of reports and forms. There is added cost to this kind of change, and the practice is unlikely to recover added cost through higher reimbursement, or benefit financially from improvements the system might make to the overall healthcare industry. The reason for this is that the physician practice is the heart of the healthcare system, the point where the art and the science come together.

The actual care provided by physicians and ancillary staffing (radiologists, nurses, and other direct providers) and support staff (secretaries, clerks and other clerical and public relations persons) is usually expected to have a personal component. There is a need on the part of people struggling with disease to be more than a diagnosis. The provider experiences this as a pressure by patients for higher personnel costs to aquire such people, train them, and allow them to interact.

The system has placed such physicians as this one in a position of giving higher priority to the paperwork storm at the expense of personal contact. He finds that his patients' opinions are not as favorable with respect to care. The decrease in personal contact time can occur when he is required to cycle hospitalized patients through the system at a faster rate. Personal attention is necessary to insure that patients understand instructions, follow up with office visits, and ask questions. This physician sees this loss of personal attention as especially important in his type of practice. Many patients are elderly. Many of them are acutely ill from their cancer and the treatments they must have over long stretches of time. Few of them have any experience with the specific needs of their disease. Most are depressed and have barriers to understanding what is happening to them.

This interviewee had the clear understanding that this plan was a part of a larger one to nationalize the U.S. healthcare system. He did not feel this was good or bad, simply a factor to consider. He was concerned that many people would have trouble adjusting to the changes created by a national tracking system and

declining patient/physician control. Physicians will also find it hard to adjust to a more rigid system of guidelines for patient care.

The physician is loosing choice already. The pattern of development of approved treatment and provision for protection from tort action (civil suits) for use of such protocols forces physicians into a pattern. No physician could offer a treatment with higher liability risk without fear of problems with their insurer. Standards of practice would be derived by a board of some sort, which would rely on statistical evaluation. The use of second chance treatments could be limited or even forbidden by such liability determinations. Again, the oncologist is especially at risk because he has no consistently reliable protocol for most of the diseases he treats. To be useful to him, the national system would have to provide a reduction in paperwork and provide reliable treatment options at a cost which allows him to continue his practice.

Savings must come from the use of a universal insurance claim system. Overall reduction in healthcare spending, early release of sicker patients from the hospital, and release of patients requiring more intensive outpatient follow-up do not help him. Reductions in reimbursement schedules and increased non-reimbursable expenses to his practice could take any savings which such claims processing changes create.

This physician has reservations about the national data system based on his role as a practitioner and on his ability to provide the best possible care. He believes that there would be a potential for enhanced political interference to shift funding in the same way that AIDS has from cancer research.

This individual, speaking as a businessman, has reservations that the federal government will provide adequate funding to maintain a high standard of care. The main provider would be a large system which can extract profit through high volume. individual providers and small networks would be pushed out of business. The only benefit of a national healthcare data system would be if it provides more benefit than cost. He did not believe that government has ever reduced paperwork in the past when it increased involvement.

In order to understand the next area of discussion, the reader must understand the concepts of capitation and global budgeting. Capitation is a process of distribution of goods or services based on an average cost of care for a given population. The capitation rate per patient is fixed regardless of utilization of services. Capitation is necessary to create a global budget.

The global budget relies on a capitation number (the average amount to pay for each member of a group to generate an overall cost to the payee regardless of the actual cost of care for the group as a whole. The process has an incentive to providers to keep costs down in order to allow for a profit. The past ten years has seen government and private insurers promoting capitated bidding for services. The reason is that capitation allows the payer to generate a predictable cost budget. Providers do not usually favor capitation as a hard and fast system because it shifts the risk from the payer/insurer to the provider of care.

Global budgeting becomes important in terms of macroeconomics. The creation of a national healthcare system would be used as a means to allocate a portion of the overall economy to healthcare. The effect of this is to ration by budget rather than by individual expenses. The provider network would be

allocated a budgeted amount of funds as a percentage of the overall economy. Services would come from that budget.

Another term which must be understood is cost shifting. This process involves moving the cost of services between various players to the advantage of one, and the disadvantage of another. This process takes place in the form of shifts in deductibles to and from the insured patient and the payer. It also occurs between providers involved in a particular case. For example, a hospital discharge of a cancer patient with outpatient treatment that otherwise would be given in a hospital shifts the cost from in-patient to outpatient services.

The global budget utilizes capitation to reimburse the providers of care based on a flat rate. Providers may distribute the cost of care between them, but the amount to be recovered cannot exceed the capitation rate. Cost shifting becomes the only method to increase a marginal portion of the cost of care. This is done at the expense of another healthcare component, because the total reimbursement remains fixed.

The physician stated that the Medicare and Medicaid reimbursement rate has been reduced to the point that it does not cover the actual cost of services much of the time. This has resulted in higher charges to other privately insured patients, especially for routine and relatively cheap procedures and routine medications. The crisis to the small provider is that the private insurer has been reducing this subsidy of the public system by adjusting the rate of reimbursement to the same amounts of the Medicare schedule. To counter this, Medicare and Medicaid now use a reimbursement schedule, then pay out only a portion of that

amount. This is, he believes, the real cause for changes in patterns of care and early hospital releases.

Without cost-shifting, Medicare and Medicaid patients would experience a difference in care between them and others with better reimbursement schedules. This becomes politically risky. The least effective negotiators in terms of lobbying ability are the individual practice physicians and other caregivers. Thus, when cost shifting occurs in a fixed budget (global budget) the large provider will take from them to maintain their own profit numbers. Left to run the current course, the small provider will be driven out of the U.S. Healthcare mix.

The capitation issue is a problem if unforeseen changes in the morbidity and mortality occur, causing the provider to drastically increase services to the population under their care. AIDS is an example of how this kind of event can happen. The insurance industry utilizes disclaimers for such unforeseen events. Such disclaimers usually include acts of war, acts of God, and self-induced events (suicide, homicide for insurance claim profit). Some form of similar language would be necessary in any plan for a national healthcare system. This language would be a major point of contention for any plan.

An additional problem is that of coverage. The capitation payment schedule encourages poor care if is underfunded. The level of care and survival of the administrative body (public or private) are both at stake. This physician uses the Veterans Administration healthcare system as an example of how global budgeting can create a disincentive to modernization of facilities, equipment and introducing new treatment protocols. The budget has the effect of dictating the patient care in the same manor as direct rationing of services.

This data base will be funded by diverting funds from patient care to administrative services. It is the only way unless the federal government chooses to fund by some kind of separate budgeting. The current climate makes this very unlikely.

The last area of concern for this physician is the advances in genetic mapping and other tools for prediction of disease. He feels we will live to see a percentage of the healthy population which will face discrimination and disability for latent tendencies which may not actually result in disease. This information is currently linked to issues of great sensitivity to employers, potential spouses, parents and the government.

Genetic testing is likely for all newborns, and even prenatal infants. This information, included as a general health information file, would risk stigmatizing many normal people for life. This also opens the door for blackmail, selective adulteration of data, and other problems which do not pose a problem now.

No system which this physician is aware of is secure. The possibility that any national data system with nearly 300 million files and possible hundreds of thousands of access ports would remain secure is beyond even optimistic security planners forecasts.

Summary of conversation with this hematology/oncology physician is that he has no problem with any change in the current healthcare system as long as it is adequate to allow survival of his business and delivery of the highest quality of care available. Security issues are a concern both for any research conducted using the system and for individuals with data in the system pool. Political meddling is the single greatest threat to patient and provider, as well as the integrity of the system. He is skeptical that government can resolve these difficulties.

Chapter XV

AUTHOR'S ENTERPRETATION OF INTERVIEWS

The overall impression gained by this author is that there is doubt that the federal data system proposed in the Clinton initiative can be completed and operated in a way which would benefit the healthcare system. Both technical and political barriers to such a system must be addressed before large scale funding is initiated.

Table 12

ISSUES WHICH MUST BE ADDRESSED

1) The preservation of a financially secure and broad base of providers
2) Efficient introduction of new innovations and products
3) Protection of individual health data from illegal intrusion .
4) Availability of aggregate data on providers and treatment options as public right to know
5) Financial protection for Research and Development organizations and facilities
6) Funding to meet current needs and continued upgrade of technology
7) Simplification of administrative requirements, including forms and reports

The public and key participants in the healthcare industry must be brought into the initial planning stages to avoid critical and expensive errors in the development of the system. There is too much at stake.

Chapter XVI

DEFINING HEALTHCARE FOR 2000 AND BEYOND

The healthcare crisis is actually a debate over what role the healthcare system should play in the U.S. as an economic institution. It is an attempt to anticipate and shape the way individual Americans will view their own physical well-being.

The direction of movement in healthcare, from private pay and control to government sponsorship and control has moved to a bureaucratic system of direction by public policy using Medicare and Medicaid. This process interlocks the political and economic discussion. If we are to understand what is taking place, we must look at the direction that the political bureaucracy wants the healthcare system to go. The political bureaucracy created the proposed automated healthcare data system. The reasoning behind this is not simple, and must be explored to further the discussion. The scale of the federal process is too broad to examine in detail. However, the states can be examined to see how they have moved to implement federally mandated processes as part of a national agenda.

The State of Missouri completed a statement of agenda (strategic plan) entitled "Healthy Americans 2000" This was done under federal mandate based on an initiative called "Healthy People 2000" spearheaded by the U.S Public Health Service (Healthy Missouri 2000 1). The Missouri document is a reflection of the mandated changes from the federal government in content, and

provides a structure for political support to implement the national agenda within set guidelines.

The Missouri work group used a model created by the National Association of County Health Officials called the "Assessment Protocol For Excellence In Public Health (APEX/PH) to define the strengths and weaknesses in the Missouri healthcare system (10). The management team held a workshop hosted by the Institute For Alternative Futures. Work groups were then formed to focus on strategic planning. This included "individuals from outside the department." The final session (1991) was held with some 80 attendees and was "facilitated" by Martha Katz, Director of Planning And Evaluation for the Center For Disease Control in Atlanta, Georgia (11).

Targets were set for specific diseases and identifiable population groups based on racial characteristics. Goals were set for the total population and for blacks as a separate group. This demographic breakout was intended to focus resources where problems appear to be a result of activities concentrated in that group.

The application of race, gender and sexual orientation to a discussion makes it appear political in the author's experience. This makes the targeting of specific goals to a specific group a political act. Other targeted programs are directed at politically charged areas such as family planning, universal access to healthcare and mental health. The entire system is expected to act through a highly integrated automated surveillance system using existing and new (emerging) technology. The ideal automated system is expected to integrate existing systems and will make much more data available outside the Department

of Health. The goal is to make much more information available to individuals "for policy level decision making...at both state and community levels" (11).

The effect of such planning is to focus more resources at the government level on all aspects of automation in the hope that this will lead to improved healthcare delivery at a reasonable cost to taxpayers. Details of how the current system operates and what the cost of increased integration and access may be are not included in this study report. Implementation cost for universal health delivery in a state with diverse populations such as large urban and rural components make specific guidelines (for availability of emergent care, for example) vital to reduction in deaths due to trauma or other emergent circumstances.

Table 13

Example of the planning used in this document

Cancer

1. Preventable Conditions
   a. 5.1 Reverse the rise in cancer deaths to achieve a rate of no more than 135 per 100,000 people.
   b. Special target: 190.0 per 100,000 Blacks
   c. Special target age adjusted 1990 baseline: 139.2 per 100,000
      203.5 per 100,000 Blacks
2. Lead Division: Chronic Disease Prevention And Health Promotion
   a. 5.2 Slow the rise in lung cancer deaths to achieve a rate of no more than 48.0 per 100,000 people.
   b. Special target: 70.0 per 100,000
   c. Special target age adjusted 1990 baseline: 44.5 per 100,000
      64.9 per 100,000 Blacks

Source: Healthy Missourians 2000 47

Similar goals are set for other disease states, occupational hazards, and other types of identified risks.

The ability of any health system to correct complex social problems without the use of force and draconian measures is not proven. Computers do not generate changes. They only measure and count. They can help define the current state of the human condition and try to project the effect of change on that condition. Education with focus on specified groups might prove more effective than a general approach. Some conduct and attitude issues are specific to certain identified categories of people.

There has been a hesitation to direct the focus of education toward target groups due to an aversion to stereotyping within the healthcare bureaucracy. This author believes many people have been harmed by this blind approach to disease management. The equivalent is to try to put out a house fire by pouring water on every building in town. The result is that the house which is burning is not having the problem solved, and the remainder of the town becomes disillusioned by the foolishness of the effort. Public health problems are often caused by specific conduct associated with certain identifiable groups. Automated systems can identify such groups. The public health system can then address the problem with focused and proven methods if the political process is held in check.

The current ability of the State of Missouri to monitor the public health of Missourians is hard to assess. It can provide snapshots of many processes. However, the population of Missouri is dynamic, not static. Acquired data is

always behind in relation to dynamic change. No current or anticipated automated system can be truly current in the face of continued change. Our political and social structure does not permit the kind of equilibrium which makes truly accurate prediction possible.

The realistic goal, according to this author, is to produce a reliable prediction of trends using proven statistical methods. An all encompassing data base will waste time and effort without achieving the necessary results to deal with health problems. An attempt to gain the whole picture would certainly risk unwarranted intrusion in personal lives without proof of benefit to compensate for the lost freedom.

The State of Missouri has a potential to overcome many obstacles due to the size of the population. The system of government bureaucracy is personally linked to the population as neighbors and friends. This makes the process more responsive to concerns of individuals who are effected.

The federal system is much more impersonal, and the bureaucracy is distant in geography and focus from the bulk of the population. Investment in massive automation and intrusive data banks will not necessarily achieve any healthcare benefit. It would undoubtedly divert resources to the automation process and the bureaucracy. The political structure would still be free to distort or ignore information because it disputes the political line on a particular power group.

Chapter XVII

INTEGRATION OF HEALTH SYSTEMS TO CREATE MEGAPROVIDERS

The desire of government to aquire and store data is, in the author's experience, the major motivator for rapid integration of healthcare into megaproviders. Large organizations are easier to control, because the administration of that organization provides for direction of subordinate parts of the system. The organization also can aquire and group data, allowing submission if predigested information to the government agency involved in oversight. This process can mean that government bureaucracy will encourage creation of megaproviders and the elimination of independent providers to simplify the oversight process. No current system is reliable in terms of tracking each individual user of healthcare. It can be very reliable in terms of tracking trends based on aggregate data from reporting organizations within the healthcare industry.

The desire for efficiency through megastructuring of healthcare can generate savings by economy of scale. The organization can focus resources to address areas of need and apply resources according to some rational structure. However, economy of scale can effectively destroy healthcare in scattered populations living in rural areas. Economy of scale offers no payback for the cost of providing healthcare in such settings.

Rural healthcare delivery is very vulnerable to reduction for economic reasons. The impact on some communities faced with virtual elimination of close medical care is not just on those communities. The time for accident victim transport in an accident also affects travelers. The lack of medical care would impose a need to shift the infirm and old to places where such care is available. This would usually mean a metropolitan area. Such shifts would continue to concentrate non-productive, high utilization populations in areas which might already be overburdened with such problem populations. It would also further erode the ability of distant family members to assist with daily care needs.

Chapter XVIII

PRIVACY AND HEALTHCARE IN THE U.S.

Privacy has been a major part of the American political debate for the past thirty years. The ability to generate, store and access vast and complex data on individuals has certainly encroached on the privacy of nearly every individual. The desire to identify individuals with common characteristics extending to common household products has created somewhat open access to even this area of human activity. It is possible to aquire complete records of telephone activity, even Internet computer use using electronic tracking without individual permission for monitoring such use. Mr. Minor quotes a computer specialist from Georgetown University:

> Every time you build a new computer network and attach another group of sites...to the big electronic highways we're so enamored with constructing now, the network grows bigger and more opportunistic...It never becomes more restricted and ethical (Minor 2).

The healthcare issue brings two different attitudes about the place of government in direct conflict. The amazing aspect of the privacy debate is that it splits many traditional political groupings, based on how they define the purpose of government intrusion.

Healthy Missourians 2000 is quoted here to give the argument for government access to health information. This term is applied in the aggregate as a comprehensive access to social and societal data about individuals which may affect health, as well as health related documentation including genetic studies, risk behavior patterns and learning disabilities.

New medical definitions of disease include violence, hazardous material exposures and risk patterns in personal lifestyles. Treatment and prevention of such diseases requires new applications for traditional healthcare tools. There is reference in the Clinton Initiative to the right to access healthcare data by law enforcement. The extension of cashless systems of purchase and on-line banking will permit intrusions into daily purchases, adding virtually every daily need to the list of automated records. The automation revolution daily increases the technical ability of an entity (government or otherwise) to gain personal data from these systems without personal knowledge or consent.

Consultant Dennis Robbins, who was involved in certain phases of the Clinton Initiative, publicly voiced concern about the access of clinical information by non-clinical persons. Arnold Relman, M.D., also commented on the Clinton proposal, stating; "Patient privacy is one of the values which seems to be sacrificed in the new system" (3).

This author contacted a number of public officials, U.S. Senators and U.S. Representatives from Missouri and Illinois. Several replies were obtained. All replies were gained after the initiative was defeated by vote of Congress. The request was for statement of position on privacy as a part of the healthcare debate. Four respondents gave specific and guarded approval to the type of system

proposed by President Clinton. They all expressed the belief that only strong protective structure for personal privacy would allow this proposal to pass congressional muster. There appears to be no support for the protection provisions in the proposed legislation.

No reply was specific to the legal protections which should be included in healthcare bills. It appears that cross-referencing of healthcare data with other government networks (Internal Revenue Service, and similar systems) or with private systems, and the sale of data from the system to public or private entities are viewed with particular suspicion.

All four respondents were clear that the privacy issue is central to the healthcare debate. None of them stated that they had a fixed definition of personal privacy which would define the healthcare debate for Congress. Only the belief that some form of privacy is central to the American Constitution and that such rights can be violated by government was clearly pointed out, again by all respondents.

The issue of what constitutes privacy in the U.S. is complex. The healthcare aspect originated as an assumption of physician-client privilege. This concept of privacy has gained acceptance by legal scholars and there is a body of legal opinion to support it. The degree of privacy and physician-client privilege beyond that which applies to situations of duress, pain, anesthetic or drug induced circumstances or narcotic affect is not clear.

Mr. Minor carried out an extensive review of U.S. law and identified many privacy cases.

Table 14

Landmark Supreme Court Rulings

Roe v. Wade 410 US 113, 1973
Stanley v. Georgia 394 US 557, 1969
Grizwold v. Connecticut 381 US 479, 1965

Source: Minor 3

Mr. Minor cited tort law in relation to privacy as follows (Quoted from Furrow, Johnson, Jost and Schwartz, 1991)

Table 15

Legal Definitions of Privacy

Appropriation of one's name or likeness
Unreasonable or offensive intrusion on the seclusion of another
Public disclosure of private facts
Publicity that places one in a false light in the public eye

Source: Minor 3

In his work "The Impact of Information Technology On Medical Records Privacy" Mr. Minor also quoted the PPSC report on privacy, which defined three objectives for the protection of privacy in any government electronic data system.

Table 16

Objective for protection of privacy from government

Minimize intrusiveness
Maximize fairness
Create legitimate, enforceable expectations of confidentiality

Source: Minor 2

Whether any existing or anticipated technologies will meet any of these ideals while producing cost effective efficiency gains is not clear. The nature of quantum leaps in technology is that flaws are likely. The risk that one of them might be a massive intrusion into personal privacy areas is understood to exist.

Why would one wish to obtain medical information on others? Reasons for violation range from criminal use such as blackmail to personal issues. In addition, some information might be altered for criminal or personal reasons by individuals or others. Businesses might seek a source of knowledge about employees or competitors which includes medical information. Government agents for various bureaucracies might wish to cross match data or generate dossiers on targeted individuals. The Internal Revenue Service might be considered as an example of how a government model of culpability in an automated system might degenerate over time.

> Noted writer and author/analyst Emily Friedman said:
> "Protection of paper records has been abysmal. When you start talking about electronic medical records with information being

> passed over phone lines, what you are doing is multiplying the problem many times" (Healthcare Financial Management 52).

There is an additional problem, related directly to the universal coverage mandate. The individual record is mandated in this system with provision for criminal prosecution for evasion. The U.S. government has mandated such conduct in the past, but has never been very aggressive in enforcement. There are many people who choose to distance themselves from government for religious and personal reasons. This process is a potential source of active and even aggressive persecution of individuals who choose not to be associated with the system.

The Social Security Act and it's associated regulations have come closest to a mandatory universal system of numeric files in the U.S. The following is a standard privacy act statement included with routine Medicaid documentation; authorization form HCFA-486 (C-3)(02-94):

> Privacy Act Statement
> Sections 1812, 1814, 1815, 1816, 1861 and 1862 of the Social Security Act authorize collection of this information. The primary use of this information is to process and pay Medicare benefits to or on behalf of eligible individuals. Disclosure of this information may be made to: Peer Review Organizations and Quality Review Organizations in connection with their review of claims, or in connection with studies or other review activities, conducted pursuant to Part B of Title XI of the Social Security Act; state licensing boards for review of unethical practices or non-professional conduct; a congressional office from the record of an individual in response to an inquiry from the congressional office at the

> request of that individual. Where the individual's identification number is his/her Social Security Number (SSN), collection of this information is authorized by Executive Order 9397. Furnishing information on this form, including the SSN, is voluntary, but failure to do so may result in disapproval of the request for payment of Medicare benefits (Privacy Act Statement).

Without any alternative means of identification, the numeric system appears the only reliable means to identify individuals in a large automated data system. Resistance to such identification methods is not limited to those with religious reasons. Many choose to be identified by name for matters of personal identity or due to previous or historic reasons.

Privacy issues are controversial primarily when individuals view government intrusion as a threat. Background investigations which use voluntary methods and obtain permission before proceeding are rarely questioned. The issue of government intrusions for such activities as espionage or criminal background checks generally require a warrant obtained from a judicial proceeding. The use of information obtained by the government at any level can be rejected by law if it is improperly obtained. The problem with the establishment of a government operated data bank is that the usual barriers to government activities is the requirement for some form of legal consent or judicial process could be circumvented by the government through completely administrative systems. Government could take liberties with information without fear of discovery.

There is also the increasing importance of health information with respect to employment. Employers have reason to promote or hire healthy individuals. The ability of the medical industry to predict potential problems makes individuals who have no history or symptoms of a particular characteristic or condition to be labeled as latent carriers or possible future victims of a disease. Additionally, some predictors of latent criminal behavior reminiscent of the cranial studies in the 19th Century are being touted. No liability can be assumed to be meaningless to an individual with a career at stake and competition for the position.

Healthcare represents only a part of the total privacy debate. The issue of whether privacy and government control of data banks can both survive intact is not tested. The temptation to link unrelated information in various government files is sometimes great. The damage, once done, cannot be repaired in most cases.

Chapter XIX

ALTERNATIVES TO A NATIONAL DATA SYSTEM

There are many ways to provide for large amounts of information. The most common is to reduce the files to manageable groupings which do not hold all of the data together, but are compatible and can transfer data freely. An alternative to a single massive file system is the use of state-centered or regional storage facilities with complimentary systems. Data could be acquired and stored by these systems, and consolidated reports submitted for evaluation at the national level. This is, in fact, the present system.

The use of such systems provides a layer of state control between the federal system and specific individuals. The acquisition of specific files on individuals would require some transfer paperwork, creating a barrier to random federal intrusion for illegal or extralegal purposes.

Mobility in the U.S. has always been cited as a reason for a national records system. However, the barriers to transfer of records between states has never been the number of persons changing residences. There is a legal and well understood concept of privacy which blocks non-relevant information from random distribution by government. The historic filing process does not mandate the transfer of legal documents when a person changes residences, even across state lines. The specified records applicable to an individual might be requested from that individual or by individual consent, but only as a need-to-know item.

This applies to school records, military service records, marriage and divorce records, and birth or death certificates. The national applications of a healthcare data base has not been presented as a compelling circumstance which requires federal government intrusion.

The use of existing data base structures allows for a graduated change to the more complex system rather than a sudden, dramatic shift. The existing technology is adequate for the purpose of tracking particular individuals, even between various state systems, without new and untried systems changes.

Such changes as this process would require in terms of legislation are minor. There is no need to operate outside the existing system. Current Medicare and Medicaid regulations which require electronic claims filing have already standardized most major reporting organizations. The provisions for access control are already in place.

The progressive shift of technology will allow the normal attrition and changes which would occur to absorb some of the cost of new innovations. This will make the process smoother and politically more tolerable.

The primary disadvantage is that the current systems which apply to Medicare/Medicaid are neither comprehensive nor universal. The use of information for some massive record storage function would not be possible. The goal of universal inclusion is unlikely because there is no need to incorporate non-covered individuals in the system. No systematic intrusion into the provider system for individual medical information is a part of this process, meaning that the current process of court order and similar judicial needs must be continued.

Chapter XX

INTRANET

Intranet was designed by Dr. Edward Fosch, Executive Director of the Healthcare Division of NetSource Communications, Inc., San Francisco, California. This system uses current Internet technology and systems to link independent networks to each other in a secure manor. The result is that these computers can interact much like an in-house system. Dr. Fosch describes Intranet as

> " ...a limited access network of linked computers that uses a common Internet based protocol to exchange data and information. The differentiating feature between an Intranet and the Internet is the limited access features and other types of security technology" (Healthcare Financial Management 30-31).

The protection system is a complex structure which is handled through software.

> "Access limits can be created using any of a variety of firewall systems, passwords protection, browser-based security features and other types of security technology. An Intranet could even be created by simply limiting the distribution of, and linking to, a given universal source locator (URL) thereby creating an information-based security system" (31).

The applications used in Intranet are considered evolutionary extensions of the TCP/IP software used in Internet. It uses two formats, Local Area Networks (LAN) and Wide Area Networks (WAN) (30). This means that the technology is not going to surprise the user, either by it's design or by the application. Business uses at present are for handout information such as employee handbook material, manuals and work schedules. Additional uses include question and answer, open positions and personnel changes, and general instructions to clients (44).

Intranet has many of the same disadvantages as on-line Intranet systems; tampering, misuse, unauthorized access and unreliable input. Access limits can be expensive and modems can be a costly addition to previously closed networks. Providers with marginal budgets for such devices can reduce cost if they can utilize intermittent reporting to reduce time spent in transmission. Dr Fosch estimated the cost of a LAN/WAN as $50,000-100,000 per station plus up to $25,000 maintenance and upkeep. Existing equipment which could be used would reduce these numbers (Healthcare Financial Management 31). However, many providers, especially in rural settings, would be hard pressed to aquire this type of equipment.

The nature of technology is that the process will not stop with respect to breaches of security. There is a risk of computer viruses, intentional and unintentional sabotage, fraud and malicious misuse. The end user would be required to have some means of cleaning up this information and to monitor access. Dr Fosch believes that various providers would be likely to bear these costs also (46).

One final aspect of the Intranet technology is that it is fully capable of multimedia applications. This aspect of the system is important because the ability to aquire and store audio and video as well as digital language and numbers is becoming an understood part of the business of medical records. The current application of video records for surgery documentation is becoming common. The military is also using this form of record for certain applications.

The process of information acquisition for government purposes would be the same as other users. The process itself would discourage abuse by bureaucracies, because the access would be identified as such from non-government sources. This author feels that the non-governmental involvement is the only sure method of restraining government abuse of the information system. Any grant of authority to aquire information in government circles often is translated to permission to use that information in an unrestricted manor within the government bureaucracies.

Chapter XXI

SMART CARD TECHNOLOGY AND SELF-CONTAINED DATA SYSTEMS

The idea of a national healthcare data system which would be self contained and complete was beyond reasonable comprehension. Technology has made it a possibility, even if it involves a stretch for current systems. In addition, current technology has made it possible to produce wallet sized cards which are capable of holding vast amounts of data indefinitely. This material is portable and easily read by proper equipment. It is also possible to include video and audio in digital form on the same card. This type of portable record is potentially more realistic in terms of cost and would be better suited to most uses by individual citizens.

The use of a portable system would not change the need for a permanent storage system. It would make the process of identification and treatment more manageable. The card itself would contain the information needed to initiate emergent care at any health facility. The problem of permission for access would also be solved in that the surrender of the card to the provider would constitute consent to access. Data on the card could be updated with each use from the master file at any location in the system in its entirety. This would correct any random error or changes on the portable device.

Such systems are practical and can manage the required volume of data without a central facility or system. The problems which remain are the same as any data system; altered or inaccurate input of data, unauthorized access to the

system to aquire data, and alteration of the card itself. The ability to alter the card itself to create a false identity cannot be ruled out.

The point of processing of data at a remote terminal is always the most vulnerable. Since all providers would require some system to access and read data, it can be assumed that there will be improper use of that equipment.

An extension of this system is that the card could be married to an implanted identity chip. The possessor of the card could be identified as the owner by a device similar to the bar code readers in local supermarkets. The problem of even this technology is that falsification of such encoded devices is also possible to a high technology criminal. Governments at virtually any level and large businesses would be capable of breaching this setup as well.

The issue of privacy again becomes a focus of concern. Readers capable of scanning imbedded chips would be capable of tracking individuals at some distance without their knowledge. The system would become a means to link individual identity to many tools of modern technology, permitting individuals to be monitored on almost every activity of daily life. The implant is not a tool of fiction. The U.S. military has been considering a similar device for their personnel. The potential is thought to extend to space-based tracking of a single individual.

The interesting thing about this kind of system is that it could be managed from a group of competing businesses in the private sector rather than a single government system. The process would work much the same way as long distance telephone services.

Chapter XXII

PRIVATE DATA SYSTEMS

Private data systems could generate sufficient revenues from access fees in much the same way as long distance telephone and 800 telephone numbers work today. Subscribership by providers and user fees would be more practical in a universal system than a user charge to the consumer. The process could be managed with existing technology, but the initiation of such a system would be very expensive.

Whether the private operator would provide security in terms of government intrusions is debatable. Cost advantages are also unknown, as no figure for either system is known. Private systems continue to be vulnerable to tampering and unauthorized access. Malicious conduct is a problem as it is for the telephone systems.

One interesting disincentive to these systems is the concern that corporate secrets and proprietary information could be transferred between research systems through transfer of records. This would be especially true of university based healthcare networks where research patients are carried as part of the general patient census. There is no way to provide screening of data that pertains to a particular person if the carrier can be shifted by the individual in the same way as telephone service is between long distance providers today.

The private system makes it possible to introduce competition into the process. Some interesting advantages in terms of service are more likely to become operational if they generate an advantage in competitive settings. This disincentive to improve, more than anything else, is the problem with government monopolies and technology.

The nature of such massive ventures is that the money to start is excessive for any single service provider. The problems with information restriction for proprietary reasons also must be addressed. One tool to address these problems is the joint operating agreement (JOA). The following gives a perspective to the use of JOA's:

> Many healthcare system integration's are inherently contradictory: the participants want the benefits of integration, but do not want to give up self-governance, relinquish title to their assets, or assume unwanted liabilities. A new integration model--the joint operating agreement--appears to resolve some of these concerns.

The Joint Operating Agreement (JOA) is intended to:

> ...bring together two or more healthcare systems (or individual hospitals) to create a jointly governed entity to operate the affiliating providers. Unlike an ordinary merger or consolidation, title to the provider's assets remains with each affiliating entity. Economic integration is achieved by a contractual agreement to share revenues and future capital

> expenditures according to predetermined formulas (O'Hare 35).

The JOA is a means to attach a network or several networks of providers to a private enterprise devoted to the incorporation of medical records. The process would allow many individual provider systems or individual facilities such as independent doctor's offices to utilize the services of an independent contractor without fear of overlapping interests of other networks tied to the same system. The process would be similar to that of separate hospital networks contracting to the same telephone system. The cost of such services would be a key to the survival of smaller provider entities. However, few other options provide any better alternatives.

The effect of such complex operating agreements on the overall healthcare delivery process must be matched to the effect of a government operated system to be properly evaluated. Cost factors of both have yet to be determined. The public interest in research and other functions related to stored data could be accessed using standard contractual arrangements. Other uses, including police access to identifiable records, would require appropriate court authority.

The ability of purpose built automated systems to manage costs is historically good. Such companies, especially when motivated by competition, utilize the available tools and develop methods to use new innovations as a survival tactic. The government, operating as a contractor, would gain from this process.

The historic ability of government to operate complex systems with efficiency has not been good. The risk of political interference with the process, especially with the information involved, is high. The ability of government to access and combine information within the government networks without non-government oversight is cause for concern. The use of an independent system with appropriate oversight would solve many of these problems.

Chapter XXIII

DECENTRALIZATION: STATE AND REGIONAL OPERATING SYSTEMS

Centralization was a common feature to both government and private operations since the introduction of mainframe computers. Decentralization was used once the ability to produce computer networks in practical forms was proven. Today, many large systems use a combination of both systems. Each one has advantages based on the applications. Decentralization is attractive primarily because of the need for rapid responses to remain competitive. This method also allows data review before it is passed on to the mainframe operation, usually by people more familiar with the local situation.

Government systems have been less aggressive with decentralization due to the expense involved and the lack of competition. In addition, government is essentially hierarchical and not inclined to give authority to the distant bureaucracy.

The centralization of a record system, probably with certain regulatory functions as well, would create an environment favorable to large healthcare providers because large systems allow the bureaucracy to operate at a distance. They have the technical support to conform to changing technology and procedures.

Decentralization is more flexible and can be more responsive to small providers and local circumstances. The closer working relationship carries some risk of influence-related problems between the public and private sectors.

The argument over centralized and decentralized systems has heated up because a true centralized system, once too cumbersome past a certain size, now is practical due to technological advances. The systems each have advantages to the prospective users as described below:

> In the centralized organization, the emphasis is more on technology and large projects to implement the infrastructure (computer hardware, telecommunications networks, corporate data bases) for the rest of the company (i.e. government). In the decentralized organization, the emphasis is more on understanding business needs and developing timely solutions to meet those needs (Reynolds 373).

The decentralized system gain in performance is the ability to respond, the ability to acquire regional knowledge and tailor to meet local needs. The decision-maker is in a position to become directly involved in issues which would have little meaning to the larger bureaucracy. In other words, a decentralized system should also have a degree of autonomy if it is to gain the best advantages of that system. There must be a divestment of authority to the site management. Government has certain traits which could pose problems for the decentralized system. For one thing, there is a continual strain between the regional and central bureaucracies for control. Funding is a matter of political as well as logical circumstances. The regional system would be severely disadvantaged in relation to an organization based near the center of power, Washington D.C.

The federal administration proposal is a centralized system. It provides incentive for centralization of the entire healthcare system. The logic for this is as follows:

> Few people can operate effectively on both a large, centralized MIS (Author's note: Management Information System, a common term for an automated computer systems) organization and a small, decentralized group as a business unit...The need to develop or even conform to corporate information system strategies is low on the list of concerns. Instead, the business unit information systems culture requires information systems specialists to identify and understand the needs of the users who depend on them and become their advocates. Often this may put people in the decentralized organizations at odds with the centralized information systems organization (Reynolds 375).

Effective management of any system is possible given sufficient resources and reliable people to administer and provide leadership. The large organization often lacks flexibility because the power remains fixed in a very small and often remote group of executives. The federal government is well-known for this type of problem, considered the basic flaw of all bureaucracies. However, automation has changed the equation.

Automation has made it possible to draw accurate conclusions based on digested data. The process is changing the healthcare industry. It is possible that automation could be the primary tool of diagnosis and the source of treatment for most disease states.

The federal government has a lot of experience with regional systems including the Federal Emergency Management Agency (FEMA), Housing and Urban Development (HUD), the Veterans Administration (VA) and others. A full study of how efficient such regional management structures are and whether a regional solution to data management in healthcare is possible should be made before any national automated system is practical.

XXIV

COST CONTROL BY EFFICIENCY GAINS THROUGH AUTOMATION

The process is in place to use automation for diagnosis and treatment of disease using reliable protocols. One provider of pharmaceutical benefits with experience in such systems is Express Scripts Inc. This company has been using automation to aquire patient information, including the health history. This system, operated from two locations, processes data provided by employers and matches claims from pharmaceutical outlets.

The original system was capable of determining whether a particular claim was covered by insurance, and whether the prescription was a problem to this patient due to previous allergies. As this system evolved it gained some ability to match dosage amounts and other prescription information with patient records to identify whether the medication was being properly dispensed. The system does not override the physician. Rather, it informs the physician of the recommended use of the medication and proposes alternatives based on cost effectiveness. This process is known as Drug Utilization Review (DUR). Express Scripts describes their DUR as follows:

> ...(This system) has one of the most comprehensive and integrated concurrent, prospective and retrospective DUR programs in the industry, capable of analyzing hundreds of safety, cost and appropriateness factors for a single prescription

> in just a few seconds (Express Scripts 1995 Annual Report 23).

Another evolution is the process of automated evaluation of a condition. The condition is then matched with information regarding effective disease control. This last evolution is known in the industry as Disease State Management (DSM). DSM has evolved into a more advanced automated process which links information about a specified patient with a data base of treatment protocols. Express Scripts has spun off a subsidiary operation dedicated to this type of DSM. The subsidiary operation is called Practice Pattern Science.

Practice Pattern Science is a concept which applies stored data (of patient information) and information about the care provided to generate patterns of care which are most efficient in terms of both cost and effectiveness. The process can identify providers with poor performance and poor records with respect to utilization of resources as well. Express Scripts Inc has described PPS as follows:

> Practice Pattern Science...develops...proprietary technologies that can analyze and link disease-specific prescription and medical claims data. It can then identify variations in the physician treatment patterns at the network, provider and patient levels. Once these patterns are identified, better quality, more cost-effective treatment can be recommended (12).

The purpose of this system is not to police the healthcare industry, but to provide the means to make the healthcare provider function better in terms of cost effectiveness and quality of care. The information derived allows providers to:

> ...compare all of its physicians to one another, or to national norms or to 'best practice'guidelines...(Annual Report 12).

This systematic use of automation, applied to the care of real people in clinical settings, also learns by the outcomes of those being treated. The continuity of care and ease of transition from in-patient to outpatient settings with a common automated oversight capacity improves cost effective care as well as virtually eliminate duplication of services. The system is expected to:

> ...be a leader in the development of disease management support services, provider profiling and outcomes assessment technologies, which, simply stated, means better healthcare at lower cost (Annual Report 12).

The focus of the system in use today by Express Scripts, mirrored by other private healthcare system provider networks and support organizations, is cost effective healthcare and identification of treatments which achieve the desired results without waste. The same systems have the capacity to guide the care of individuals and the quality of the provider delivering the care. These systems

base the technicalities of automation on hundreds of millions of patient years incorporated as cases within their data systems. Can any federal system claim this?

The capability of such private systems is not easily nullified by politics. This is not the case for any government system. The identity of poor performers, pockets of poor service or concentrations of diseases within certain populations constitute political matters. If the healthcare information system is to be effective, it must break political ties. The chances of this happening in the real world are slim at best. An added concern is the ability of government to tread the political waters of medical ethics.

Chapter XXV

ETHICS AND MORALS: WHAT DO WE EXPECT FROM HEALTHCARE?

> Our social conscience tells us that health is such a fundamental value that persons should receive care on the basis of whether they need it or not, not on the basis of whether they can pay for it. The problem, though, is that somebody, somewhere, has got to pay for it (Boling 12).

The desires of a nation approaching 300 million in population are diverse. The interests of various groupings within the population are often contradictory. There is also a gap between what is theoretical, what is possible and what is practical. These questions, when related to healthcare, constitute the arena of medical ethics.

No automation potential by any system now or in the future will resolve the issues of medical ethics as related to services, healthcare access, cost of care and who is to pay for the services provided. The ability to regulate individual care by automation may actually create more debate on ethics, simply because the alternatives to the emergent system will not exist. The patient is fed into a system which will direct what can be done, and that is that.

The issue of political intervention in personal decisions regarding one's life via regulation is basic to the creation of an automated records system. The reasoning for such a system is rationalization of the healthcare process. It is the first step to establish control of the healthcare process.

Who will shape the decisions which the system will ultimately enforce? Will political expedience be the decisive factor? Will science overrule moral considerations based on religious and ethical priorities? Perhaps most important, will specified political goals for the national agenda dictate the delivery of health services?

Dr. John Banja, PhD, Associate Professor of Rehabilitative Medicine and a Medical Ethnicist at the Emory University School of Medicine in Atlanta, Georgia (Boling 79). He stated that the greatest gap in the direction health services should take exists between patients and those who set the pattern of care in terms of ethics and morals:

> There are a large number of areas in ethics where ethnicists, theologians, the courts, legislatures and other decision-making bodies have reached considerable consensus about what is the 'right' thing to do in a given case. Issues about informed consent and the right to die are two things that come quickly to my mind. The great problem we seem unable to answer today is how to balance the right of access to healthcare with its spiraling costs, and wondering in which cases it's allowable to say 'no' to patients who request treatment. We are ethically confused in our country about whether healthcare should be a right or a commodity (Boling 78)

Mr. Banja went on to state that no healthcare system as advanced as ours can maintain a completely open door without financial catastrophe. The issue is, to him, one of rationing based on ethical considerations.

Another author writing for Time Magazine addressed this aspect of the discussion based on a study published in the Journal of the American Medical Association by Dr. William Kraus, co-director of the study at the University of Virginia:

> ...There is no way for government or private insurance to pay for it all. So, even if we had a reimbursement system that would pay for a "reasonable" amount of care for everyone, that amount would still fall short of what technology could presently provide if money were no object (Jaroff 76).

No automated system can set policy on what is to be done with healthcare in a society with limits to resources. The society, fed by political guidance through a public education system, desires what has been promised.

> "There is a tragic mismatch between the healthcare many seriously ill people want and what they get...we don't know when to stop (Jaroff 76).

The system is so rooted by the past fifty years of expectations that recent efforts to provide education by the use of trained facilitators to promote better understanding of the dying process had no effect on the behavior of patients or their families.

> We were stunned to find that it didn't make a bit of difference. The tools that experts thought would work didn't. The reasons are ingrained in our society. Physicians are taught to save lives, that death is a failure. Patients and families have come to expectmiracles in every case. No one wants to give up too soon (Jaroff 76).

Jaroff continues to discuss the situation medical education has created. He quotes a

> "What is needed now...is a hard look at the medical culture in which doctors have access to splendid life-saving technology and feel obligated both morally and legally to use it" (76).

The issue of who will be given, and who will be denied, is only logical in the aggregate form. Individuals have faces and names. Often, they have families and connections to the political process. At present it is the provider who must tell someone that the patient is too old, too young, or otherwise too disabled to maintain or give treatment. The system is not currently reliable with respect to support of a decision which is in conformance to public policy, but painful. There can be no public policy unless the system can support those confronted with the face of the victim or the family of that person in their care. The public must be educated to accept an end to care, an end to life. The fact that there may be no bad guys in this equation has been lost in the hype over technology.

The healthcare crisis has returned to the point that this author started it. The issue becomes one of expectations, understanding life and the end of life as a part of a normal cycle. The population, once primed to think the fountain of youth might be real, must be refused on death as a normal thing. The weakening religious between government and the population makes this moral argument very difficult.

If the actual cause of the present crisis cannot be managed in terms of expectations and politics, no automated system will resolve it. It is critical that the expense of any system be faced with respect to how it will be used. At least some portion of what the system is expected to resolve must be proved before resources are invested, or there is risk of justification by assignment of unwanted or undesirable uses to justify the cost.

Chapter XXVI

PARALLEL CONCEPTS OF HISTORY

The author believes that the Clinton Initiative represents the leading edge of a general takeover of healthcare by the U.S. Federal Government. It also is a method to incorporate vast amounts of medical and non-medical information for easy government access starting from birth. The process is not easily justified by the appearance of crisis, or the cost of healthcare. The research and tracking of disease in the U.S. does not appear to require it. There is no evidence that the data would be valid over time due to inability to control information in the system. So, why attempt it?

The process might be part of a larger government attempt to create files on every U.S. resident for some purpose. Health services are the major traceable system which comes in contact with most individuals at an early point in life under voluntary circumstances. There is no similar method to aquire such comprehensive records because no government structure is closely tied to individual access by every person. Food and shelter can be acquired without government records. The education system can also be evaded successfully outside the law. Work can also be obtained outside the sight of government or even avoided altogether. Some people can meet virtually all needs in life without using any government service. Healthcare is the most likely to be required by a majority of individuals, especially in the early stages of life...prenatal, at birth, and during infancy.

The healthcare data base would be viewed as either benign or benevolent, even by many who would oppose a national identification process. It would also leave open the door for cross-filing with such data stores as military records, Internal Revenue Service records and Social Security files. The process would be internal to the government, unlike access to private banks and credit card files.

There might be another explanation for the initiative. The process of taking care of daily needs might have political benefits, but it does not generate breakthrough technology or quantum leaps in the progress of humankind. Similar sums of money, devoted to a particular purpose, can lead to historic events comparable to a major military victory. An example of such success is the space program initiative of the Kennedy Administration in the 1960's and the Eisenhower initiative called the National Defense Highway Act. The Johnson Administration Initiatives along this line, The Great Society, and Wipe Out Cancer in Our Lifetime, both failed in the public perception.

President Clinton had a vision of himself as a successor to the Kennedy presidency. This vision demanded a great and visible impact as a legacy. The development of the kind of automated technology to put a national healthcare data base in place would have been monumental. The effect of such an effort would have been enormous in terms of spin off technology. The project, though a stretch, is considered realistic.

Diversion of resources to this project would have economic impact in the area most important to the U.S. national focus, high technology. Research funding on this scale could generate spin-off technologies which we have no idea of today.

Government had used the National Defense Highway Act to reshape cities untouched by the war and to keep pace with a modernized Europe. The superhighway aided the automotive and trucking industries. The effect of centralized planning was the intended effect of promoting development along the highway routes. Yet, the same planning caused catastrophic cultural changes by destablizing ethnic neighborhoods, high rise public housing disasters and other unintended consequences.

Efforts such as the "war on Cancer" intended to "wipe out cancer in our lifetime" died quietly and without a victory. The limits of the favorable advances fell short of expectations and the focus was lost. AIDS research has similar characteristics, little to show for dollars spent. There are no superhighways to show, and no men walking on the moon.

President Clinton might have been focused on the healthcare issue as a source where government resources could be applied to achieve historic effect. The model examples chosen for emulation were most likely the Social Security Act and the Moon Program. Both have had lasting historic impact.

The technology of automation to produce a massive data system is within the reach of a concentrated research effort. It may happen in time regardless, but it would bear Clinton's mark if he could attach his name to the effort. The healthcare effort, acting as a pilot project, would lead the way to a more rapid technological revolution without reliance on the defense industry.

The application of healthcare to motivate popular support is tried and true. The U.S population has been already indoctrinated to it. The only alternative possibility, national defense, has no worthy foe at present. There is an interesting

trend toward use of threats of space objects striking the Earth to create momentum for space technology funding. It fits the pattern of government incentives fed through public and private means to incite a popular response.

The decision not to pass the Clinton Initiative was a result of many factors. The problems included a poorly organized campaign and lack of time for review before the congressional vote. Other factors such as the lack of involvement with the American Medical Association and the American Hospital Association and other interest groups during the formative stages probably doomed it from the start. However, there were specific reasons for not passing the portions which established the automated records system, based on logical and unanswered questions.

Is this large and intrusive system necessary for the promotion of a universal healthcare agenda? Is the systematic acquisition of health data on every American citizen justified in terms of cost? Is a government system safe from improper use by the government for unintended purposes? How will the system create health benefits which are outside the reach of private innovations? How would the system be funded? Would the system be voluntary or mandatory? How would those who refuse participation be punished? These issues must be addressed before any legislation empowering the formation of this kind of system is approved. Afterward it may in fact be too late.

Chapter XXVII

AUTHOR'S CONCEPT OF WHAT GOVERNMENT INVOLVEMENT SHOULD BE

Government is not inherently evil or inclined to enslave the people, although some hold this view. The process of government is becoming more complex due to the size of the population and the technological advances of the day. There is an honest effort to apply economics to avoid disruption in the social order. The problem is the number of unknown factors in the economic equation. Government is trying to eliminate factors which are hard to predict without precise data.

Economic stability can only be achieved by removing individual freedom in certain aspects of life. Individual choices are disruptive to the complex social order in which we live. While freedom has certain individual advantages, it also hurts the overall social planning. The technical advances, especially with respect to digital automated systems, have made individuality a misnomer where it refers to a private life in an economic sense. There is no economic transaction which cannot be tracked from the purchase of a stick of gum to the use of medical services to remove a splinter. Such tracking could be done by private corporations, states, regional bodies, or at the federal level.

The government will track these events in some form, and will direct access to services which fall under guidelines as an economic planning issue.

Individuals will require some document, electronic or digital, to exist within this type of society. The author feels that certain guidelines must be established to insure that each citizen understand the rules of the society which control access to, or denial of care.

There must be a mandated and enforced system of numeric identification applicable to every resident of the U. S. to be used from birth to death for all identification, public and private. This ID will apply for all government access including birth certificates, death certificates, marriage and divorce papers, Internal Revenue Service documents, drivers licenses, professional licenses, school enrollment and every other public purpose. The same ID will be required for all public transactions including point of sale card transactions, bank transactions, utilities use including communication devices and even private school enrollment. The ID is to be given with or without consent and any attempt to evade or to alter the system should be punished in a manor which acts as a deterrent to others.

There must be a concorde of agreement as to what constitutes healthcare. The system must define what is therapeutic and approved, and what is not therapeutic and therefore disapproved. No individual exceptions should be allowed except for experimental purposes, and then only by licensed research systems. Any treatment without use of the ID number, unauthorized treatment of individuals, or inclusion of non-approved instruction in the public funded education system regarding treatment options which are not approved by the government should result in suspension of the license to teach. There must be a social understanding of what is allowed, and what is not.

The government legal codes should allow for maximum penalties for any action to evade or disrupt the numeric identity system. Any violation of the system for any reason should result in confinement and/or denial of access to the government services which such identity methods require. This would include all healthcare, public utilities, transactions involving housing, banking and purchases made in most retail outlets.

Any misuse of government data by individuals within or outside government, including violation of personal privacy for personal or organizational reasons, should be punished in the most severe form. This process should be monitored by a select board, and the rule should apply to all, even the President of the United States. Any effort to alter or distort data in the system should face extreme penalties. The integrity of the data should not be compromised by either politics or personal feelings. These rules should apply to all government organizations, individuals, corporate organizations, professional groups, legislative bodies, courts, foreign and domestic diplomatic services, and foreign individuals residing on U.S. soil.

Research functions and use of data in the various data systems, public and private, should be allowed as aggregate numbers for research purposes. No identifiable data should be dispensed to anybody without the consent of the individual except if the need is established in advance and approved by both a federal judge and the Health Information Board. The material transfer should be restricted to the bare minimum required to meet the identified need. No relevant data about a person's physical health should be withheld from caregivers for any reason. Any attempt to withhold or failure to report data about the health of an

individual under care should be treated as a breach of ethics and a violation of law. The Health Information Board should be required of release all aggregate data to any citizen or organization based on request. No effort to distort or alter data other than individual identifiers should be made. Penalties related to any such efforts must be severely dealt with.

Any identifier used in the process of data collection which does not identify an individual should be available in a complete and timely manor, without prejudice.

Chapter XXVIII

CONCLUDING STATEMENT

The U.S. government has been involved in heathcare since our independence. The focus of government has shifted over time. Various levels of government have shifted responsibilities between them, and the role of healthcare in terms of national security and public welfare has changed. Additionally, the government role with respect to records acquisition and storage has also changed.

The government has assumed a more prominent role as a financial player with respect to healthcare. The Medicare and Medicaid systems have led to an increased responsibility to direct the actual type of care individuals receive.

The increased amount of resources applied to healthcare has led to a perception that healthcare is causing economic problems. This has resulted in the application of the term 'crisis.' The objective of those promoting that term is to generate public support for radical change in the system.

Digital automated systems have become capable of more advanced forms of records acquisition and storage. There are elements inside of government and the U.S. public who desire to increase the ability of the government to track U.S. residents. The healthcare system is in a position to aquire individual information in a systematic way with less resistance to the process.

The resistance to the acquisition of such data by individuals and groups is based on personal convictions (often based on religion) and on fear of intrusion into personal privacy. The first category must be overcome by direct government

coercion within legal bounds. Precedent for this exists in the Social Security Act and subsequent regulations, presidential directives, and court decisions. Privacy issues must be addressed by severe penalties for any attempt to adulterate, evade or modify data in the system. In addition, unauthorized access or use of information must be severely punished.

Finally, the potential for this data must be realized by wide access to aggregate data from the system. The integrity of information released, and the right of access by request to aggregate data without any preconditions must be absolute. There should be no effort to hide unfavorable information pertaining to any group or population. The information must be uncompromised by politics or personal convictions, or the belief that certain groups would be compromised if certain data were released.

The problems related to automation must be a subject of debate. No subversive attempts to bypass intense debate should be tolerated. There is far too much at stake to allow political action on the words "trust me!" The political and social groundwork for political support of change must be done first, before resources are shifted into the change.

Change itself is inevitable. No system can stop progress. The place of government is to promote change as an orderly progression, with the minimum of civil disruption. If the healthcare system is a tool for acceptance of greater federal government control, then it also must be a demonstration system for the ability of the federal government to manage that information without violating privacy.

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