*Tele*medicine

INTRODUCTION

...and it's role in the future of health care.

Will this technology change the way we practice medicine and deliver care?

Today's health care marketplace continues to be volatile and unpredictable with all indicators pointing to us continuing on this rocky course for sometime into the next millennium. Health care costs are on the rise with predictions of health insurance premiums doubling by the year 2002. In addition, the rate of the uninsured and underinsured population continues to rise.

Managed care, which has become the dominant form of health care financing and delivery in the United States, has transformed health care into big business. Sophisticated knowledge, management skills and up-to-the-minute information are required to keep up to the pace of the marketplace. Managed Care Organizations (mco's), initially touted by many as the answer to our health care woes, are now facing tough challenges with financial losses that are causing some mco's to fold, consolidate or merge.

In addition, patients today, whom I refer to as pc's (patient consumers), are very different from the patients of yesteryear. PC's are more educated, play more of an active role in their own health care, second guess their physicians recommendations, and are more convinced today than ever before, that traditional medicine does not hold all the answers to good health. PC's now demand and expect the same services from the health care industry and its providers that they do from any other service industry--- excellent service, exceptional quality at an affordable price.

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Despite the many uncertainties in the industry, one thing is certain; information technology and telecommunications will undoubtedly play a large role in shaping the way health care is delivered in the future, not just in the United Sates, but globally as well. These technological advances will be used to develop integrated health care networks and systems that will facilitate the delivery of appropriate care in an expeditious and cost-effective manner.

Needless to say, this paradigm shift has physicians in particular, struggling to survive. Many are resentful and frustrated as they have watched their autonomy usurped by mco administrators, their incomes shrink and their patients' faith and trust in them, diminish. Many physicians are still trying to find the right balance between caring for their patients and monitoring the bottom line, without losing the caring and personal relationship that has been fundamental to the practice of medicine.

The formidable task we are faced with as a country today, is to make our health care system equitable, affordable, and accessible. We must all work fervently to ensure that all of our citizens have the right to readily access and receive quality care, and that we appropriately use the new technologies available to us to achieve these goals. The challenge then remains to find new ways of controlling and reducing costs without negatively impacting access to and quality of care.

WHAT IS TELEMEDICINE?

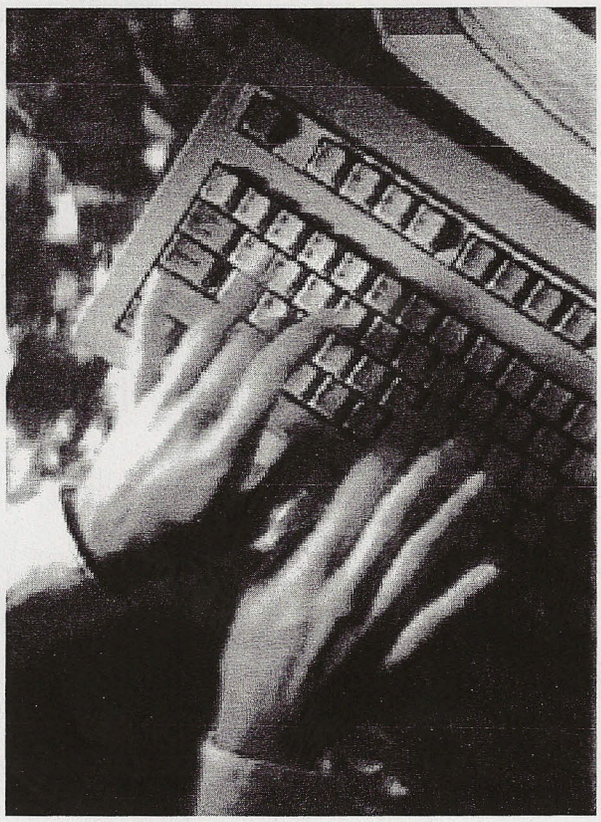
Telemedicine, also referred to as telehealth, is defined by the AMA's Council on Medical Education and Council on Medical Services as "the provision of health care consultation and education using telecommunication networks to communicate information," and also as "medical practice across distance via telecommunications and interactive video technology." While the interest in telemedicine over the past four to five years makes it appear to be a relatively new use of telecommunication technology, it has been in use for over thirty years. The National Aeronautics and Space Administration (NASA) played a significant role in its early development by providing much of the funding and technology for early demonstrations. The great majority of the projects to date have been federally funded and now we are seeing a shift to states and the private sector marketplace for uses of telemedicines products and services.

The early projects demonstrated the potential of telemedicine services to improve healthcare and reduce costs by providing patient consultations and continuing education to healthcare practitioners in rural areas. As the technology has advanced and with its costs decreasing, it seems apparent that in our fast paced, high tech world, these services can and will do the same for us in major cities around the globe.

Highly integrated organizations such as mco's, are becoming increasingly more dependent on information technology as they look for new ways to cut costs. Now then is the time for telemedicine to move into the mainstream of the health care marketplace. In fact, experts predict that the entire worldwide telemedicine market could reach $3 billion dollars by the year 2000.

TELEMEDICINE APPLICATIONS

There are several telemedicine applications; with teleradiology by the far the fastest growing component. This is undoubtedly due to the fact that teleradiology has managed to successfully overcome some of the key obstacles that have inhibited telemedicines growth in the earlier days–namely reimbursement policies and cost.



In most states, Medicare will reimburse for teleradiology services but will not do so for face-to-face telemedicine encounters. Also, the fact that teleradiology utilizes primarily "store and forward" images makes it less expensive than the face-to-face consults and even less expensive than the real-time patient encounters. Cardiology, Dermatology, Surgery, Pathology, Psychiatry, and virtually all specialties of medicine have the potential to be practiced via telemedicine. Because these specialties in general use the more expensive type of technology, they have been less successful in gaining entry to the mainstream. More recently telecardiology and telepathology have seemed to breakthrough some of the reimbursement barriers and for certain services have been approved by HCFA for reimbursement.

Apart from consultations, telemedicine technology has also been used to educate patients as well as health care providers. Great interest and promise has also been shown with its use in the home health care business.

The home health care market provides great opportunities for telemedicine applications and to reduce costs. The average cost of providing nursing assistance in the home is very high. On the other hand, the average cost to visit a patient via a telemedical network is considerably less expensive and also more convenient. It also allows the provider to see more patients in a given time frame and thus more patients are "visited" and cared for within a given day.

Another area where telemedicine technology is being applied is within the prison systems. Currently, prison officials in Texas, Oklahoma, Michigan, Massachusetts, Virginia, and Tennessee, and other states soon to follow, are using telemedicine to provide care for their prison populations. It is considerably less costly, and not to mention safer, to transport an inmate via telemedicine links rather than physically transport them to a medical facility for care.

Telemedicine units have become less cumbersome and more user friendly providing a face to face "TV like" quality interaction with the health care professional on the other side. "TV like" video-enabled units can be rolled virtually anywhere-- homes, office buildings, schools, and connected through simple telephone lines. A small camera and microphone are needed and medical peripherals such as a stethoscope, dermascope or blood pressure cuff may be attached to facilitate examining a patient.

Telemedicine's potential to radically change health care delivery is outlined in Table 1 below and is realized in three critical areas-

- access
- quality
- cost

TABLE 1
TELEMEDICINE'S POTENTIAL FOR REVOLUTIONIZING HEALTH CARE

Improves ACCESS to care

- Provides health care to previously underserved and unserved areas.
- Increases speed of diagnosis and treatment, providing immediate access to health care.
- Facilitates access to specialty care.

Reduces COST

- Helps to avoid expensive duplication of services, technologies and specialists.
- Provides a method of allocating resources to where they are needed most.
- Services can be provided without incurring the costs associated with travel.

Improves QUALITY

- Enhances the decision making process through collaborative efforts.
- Physicians (referring and consulting) and patients work together simultaneously.
- Improves patient compliance and knowledge when all parties are involved.
- Facilitates continuity of care.
- Provides a centralized location of patient records and medical data.

TELEMEDICINE'S ROLE IN THE FUTURE

Telemedicine will undoubtedly continue to play a greater role in the future of health care. As the studies continue to show that telemedicine can produce positive health care outcomes and add value to our current system, more skeptics will be converted to the fact that telemedicine can be used to bridge the widening gap in our health care delivery system today.

In addition, as the cost for this technology continues to decrease and become more affordable, and as pc's become more comfortable with computer-based technology and the Internet, on-line health care will be second nature. As quoted by Gordon Rudd, who manages a telemedicine program at St. Francis Health System in Tulsa, Oklahoma, " four to five years from now, this will be the normal way of life...It won't be anything for you to just fire up your system and see a physician and interact."

BARRIERS TO IMPLEMENTATION

Though the prospects for the future of telemedicine are bright, there are still significant hurdles to overcome. Telemedicine brings with it many medicolegal issues related to malpractice, licensure boundaries, documentation and the security of information transfer. Many of these legal issues are due to the fact that the laws are trying to play catch-up with the rapid advancements in technology.

Another significant obstacle pertains to reimbursement. Reimbursement varies from state to state with most private plans electing not to reimburse for telemedicine.

Of interest is the fact that HCFA has approved telemedicine reimbursement nationwide as long as the area being covered is considered "underserved." It is anticipated that this reimbursement will expand to all areas of need in the near future.

Other concerns include both physician and patient acceptance of this technology. Both have concerns that this technology will be used to substitute physician care

rather than complement and enhance it. Also, the perceived loss of the human touch element gives many patients cause for anxiety and physicians the feeling that this may be another tool of mco's to use physician extenders, rather than physicians, to care for patients. These fears and anxieties will have to be alleviated before significant progress can be made.

CONCLUSIONS

There is no doubt that telemedicine will play a significant role in the delivery of health care globally. Telemedicine is not the panacea, but it has the potential to reform health care by improving access to care and enhancing quality, over large geographical distances by the simple touch of a button.

To quote Health and Human Services Secretary Donna Shalala in her announcement of a National Telemedicine Initiative in October 1996; "telemedicine offers us some of our best and most cost-effective opportunities for improving quality and access to health care. The projects we are supporting will evaluate the use of telemedcine in a wide variety of settings...These are imaginative and well-targeted projects that will help us determine how we can best use information via telemedicine for clinical decision-making."

With time, the barriers to implementation that now exist will be chiseled away, as long as the major barriers to implementation are effectively addressed.

RECOMMENDATIONS

In the meantime, we must continue to support the funding of telemedicine projects so that its full potential may be realized. Proponents and pioneers of telemedicine need to put the pressure on the legal and regulatory infrastructure to get them to move swiftly to mandate the necessary changes that will facilitate telemedicine's widespread use. Efforts must also be made to keep the general public well informed of the developments in telemedicine and to educate them on its benefits to the health care delivery process.

As a nation, we must find the way to use the resources and technologies we have to ensure that all citizens, regardless of their location or circumstance, have access to quality health care. To borrow the words of Vice President Al Gore, "We must put cutting edge technology to work to help improve health care for all Americans." ■

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