

# Telemedicine

## IN GENERAL

Telemedicine has the potential of reducing the nation's health care costs. The work tools involve the nation's widespread telecommunication infrastructure. At the present time, there are seven applications being planned or implemented:

- Electronic transmission of patient information
- Electronic bulletin boards of medical information
- Electronic claims processing
- Electronic inventory management
- Teleconferencing for training and consultations
- Remote testing by electronic stethoscopes, otoscopes and laryngoscopes
- Teleradiology of X-rays, Cat scans, MRI, etc.; telepathology; echocardiography.

The applications are particularly useful in rural areas; or where the employer wishes to monitor the medical condition of an employee; or where large savings are expected. There is the downside, however:

- It is still fairly costly. The start-up costs are particularly onerous.
- Health care plan reimbursement policies are not yet in place.
- Unsettled environment with the big players (owners of the telecommunication networks). The merging is not over.

## PRACTICAL APPLICATIONS

There are four ways by which parties to health care may use the nation's widespread telecommunication infrastructure for high-speed, high-resolution video, image and data exchange: (1) electronic management and transport of patient information; (2) electronic processing of health care claims; (3) electronic inventory management systems; (4) teleconferencing for professional training and remote medical consultations.

## EXAMPLES OF LONG DISTANCE MEDICINE

Using electronic stethoscopes, otoscopes and laryngoscopes, the specialist can examine a patient's heart, lungs, eyes and throat. Via teleradiology, X-rays and CAT scans are transmitted over the telephone lines for examination.

An interactive video system (MEDTEL) will enable a physician in place X to examine and advise patients in place Y. The tools are video cameras and television sets. The techniques involve the workup (stethoscope, thermometer, blood pressure, pulse,

looking into eyes, ears, throat, analyzing x-rays or pathology smears) to be done at Y and transmitted to X where the physician diagnoses. Will it be covered by insurance? Too soon to tell?

## **ELECTRONIC BULLETIN BOARDS**

With a PC modem and suitable software, any medical professional can do the following:

- Participate in case discussions.
- Access medical library services.
- Download and receive credit for a continuing medical education course that may be available.
- Access all the resources of the program's sponsor via E-mail.
- Receive the latest available public health advisories and information.

## **INFORMATION NETWORKS**

Video conferencing for remote medical consultation and professional training is where some of the more highly visible telemedicine projects' efforts are concentrated. However, telemedicine, broadly defined, also includes electronic management and transport of patient information. It is in these areas that some of the largest return on investment from telemedicine may be realized.

## **CHALLENGES TO OVERCOME**

- Costs are still high; maintenance sponsors of a high-tech staff are essential.
- As of this writing, telemedical charges are not reimbursable charges by the plans.
- Uncertain outcomes with the nation's information highways.