Senator NELSON. So if the sending physician is a cardiologist and he has this patient there, he gets this mechanical interpretation back.

Dr. CACERES. Yes.

Senator NELSON. Then he reads this mechanical analysis and makes his interpretation; is that correct?

Dr. CACERES. That is correct.

Senator NELSON. What is the benefit to the cardiologist of following this system rather than simply looking at the electrocardiogram tape as it comes off the machine?

Dr. CACERES. At the present time, there are insufficient cardiologists to read the growing number of necessary electrocardiograms. Several hospitals in large centers find it impossible to obtain the services of cardiologists for routine reading of electrocardiograms. In the Hartford Hospital, for example, physicians have studied their speed in reading electrocardiograms with and without computer help. They found that the computer multiplies the quantity of work they do five times, which means that in reading electrocardiograms one cardiologist can do the work of five. Access to the computer system effectively multiplies the professional manpower resources available. What we envision would be the cardiologist in his heart center reading a great number of tracings, say five times more than he ordinarily would, and with greater precision.

In many other areas we are concerned with the problem of periodic examinations of people who must have electrocardiograms for such things as insurance examinations. These come to the cardiologist. It would be useful in these centers to have this type of work prescreened by a machine system.

One of the problems in the delivery of health systems to heart patients throughout the country is that there are an insufficient number of qualified readers of electrocardiograms. We need to train many more or to provide machine assistance. The latter is the easiest solution.

Senator NELSON. I understand you to say that a cardiologist using this computer system could, in fact, do the work of five other cardiologists daily?

Dr. CACERES. That is true. Those were the results of a study done in Hartford Hospital.

Senator NELSON. Thank you, Doctor.

Did you have any questions, Senator Hatfield?

Senator HATFIELD. No.

Mr. CALLAHAN. Thank you, Dr. Caceres. We appreciate your assistance today very much.

Dr. CACERES. Thank you.

Senator NELSON. Thank you, Dr. Caceres. The committee appreciates very much the contribution of your time.

Mr. CALLAHAN. A somewhat different use will be made of telephonic transmission of EKG's at Salem Memorial Hospital, in Salem, Oreg. Used in conjunction with physiological monitoring in the intensive-care section of the hospital, it will enable the hospital to present cardiographic data to a heart specialist at any time of the day or night. The time saved when an emergency strikes during periods when a cardiologist is not on duty can make the difference between life and death. The Salem Memorial Hospital system of EKG transmission is not for diagnostic use, as we have been discussing so far today, but rather