I am not really qualified to answer, but I would be glad to ask one of the doctors with us today if they might wish to comment on that.

Senator NELSON. Go ahead.

Mr. CALLAHAN. Finally, we are going to demonstrate several new services which have promising potential for medical applications, specifically telewriting, Touch-Tone telephones, and Picture Phone service.

As I mentioned, since I am a communications man and not a medical man, I have asked the professional medical people who are familiar with several of the systems that we are going to describe here to discuss the medical aspects and to make any evaluatory comments. Two of these gentlemen are here with us, and four others will speak to us by telelecture, which is an amplified telephone call.

I would like to introduce at this point Dr. Joel J. Nobel, director of the Graduate Pain Research Foundation in Philadelphia.

Dr. Nobel——

Senator NELSON. Glad to see you, Doctor.

Mr. CALLAHAN (continuing). And Dr. Thomas C. Meyer, associate dean of the University of Wisconsin Medical Center.

Dr. Meyer——

Senator NELSON. Dr. Meyer.

Mr. CALLAHAN (continuing). Addressing the committee by telelecture will be Dr. Cesar A. Caceres of the U.S. Public Health Service in Washington, D.C.; Dr. John S. Laughlin of the Memorial Hospital for Cancer and Allied Diseases, New York; Dr. Hugo C. Pribor of Perth Amboy General Hospital in New Jersey; and Dr. Cecil L. Wittson, of the University of Nebraska College of Medicine. The communications equipment you see displayed will be used in live demonstrations of several of the systems we shall discuss.

In concluding, I will briefly discuss the function of communications in the developing concept of regional medical centers.

If it pleases you, Mr. Chairman, I will proceed now to discuss the first communications system, which is the transmission of electrocardiograms by telephone.

Senator NELSON. Go ahead.

Mr. CALLAHAN. During the time it takes us to present this program, hundreds of persons in the United States will die of coronary occlusions. How many of these could have been saved if proper means of diagnosis were available is problematic, but if the answer turns out to be one or more, then surely these prompter means must be found.

One of the most widely recognized tools for the diagnosis of heart ailments is the electrocardiogram, which is commonly referred to as an EKG. By taking note of the relative amplitudes, durations, shapes, and relationships in time of the wave forms of an EKG tracing, a cardiologist can tell much about the condition of a heart.

Data-Phone data sets are now being used to transmit EKG tracings over the regular telephone network, thereby permitting maximum utilization to be made of qualified specialists and skilled personnel in analyzing EKG's. A Data-Phone data set is a telephone which en-