

Mr. CALLAHAN. Both the local doctor and the specialist. They can tell when the tracing ends. Then both the receiving end and the local doctor take the handsets, switch into a voice mode again, and discuss the case at hand before hanging up.

Senator NELSON. So they are connected all the time?

Mr. CALLAHAN. Oh, yes. Therefore, as you said, if there is an indication of an immediate need, they can make that analysis and interpretation right away and take appropriate action.

Senator NELSON. I see.

Is this being done anyplace now?

Mr. CALLAHAN. Yes. In addition to Creighton, we know of at least 17 other locations in the United States where such groupings are in operation.

Senator NELSON. I know, but are they using this equipment?

Mr. CALLAHAN. Oh, yes, sir. This is now standard equipment which is available to all of the Bell telephone companies, and there are installations in various parts of the country—New York, New Jersey, a number of them—out in Wyoming and West Virginia and Illinois; and almost weekly, there are new groups. By groups I mean you have to start with a regional center or a cardiologist, who then arranges the service with other local physicians in his area for whom he will do the specialist work.

In this communications system I have just described, the medical data is interpreted and analyzed by a specially trained person. It is apparent that the processing of millions of EKG's annually in the fight against heart disease imposes a tremendous burden on these specialists.

A research program presently sponsored by the U.S. Public Health Service is proving the feasibility of applying modern data communications and data processing techniques to the rapid, accurate interpretation of electrocardiograms and other medical signals by computer. A computer is being used to analyze electrocardiograms transmitted over telephone lines from cooperating hospitals and Government clinics to the U.S. Public Health instrumentation field station.

Senator NELSON. Are you saying that the computer does the analysis without the intervention of a doctor?

Mr. CALLAHAN. Yes.

Senator NELSON. Will that not upset what the medical profession is always worried about, the physician-patient relationship?

Mr. CALLAHAN. Well, in this case, it is an analysis and interpretation, but it is not telling the doctor what to do; it is telling him what the condition of the heart is, which can be, as is being effectively demonstrated by the U.S. Public Health Service, very dependably performed by the computer.

Senator NELSON. Is that kind of analysis of an electrocardiogram by a computer being done in practice now anyplace?

Mr. CALLAHAN. Yes.

Senator NELSON. Where?

Mr. CALLAHAN. We will show you some interpretations which yesterday were transmitted from the Hartford Hospital in Connecticut to the U.S. Public Health Service computer and the analysis and