Integrated Clinical Workstations for Image and Text Data Capture, Display, and Teleconsultation

Ruth Dayhoff MD, Peter M. Kuzmak, Garrett Kirin
Washington Information Systems Center
Dept. of Veterans Affairs
8403 Colesville Rd, Suite 200
Silver Spring MD 20910
(301) 427-3700
E-mail: DAYHOFF@FORUM.VA.GOV

ABSTRACT

The Department of Veterans Affairs (VA) DHCP Imaging System digitally records clinically significant diagnostic images selected by medical specialists in a variety of hospital departments, including radiology, cardiology, gastroenterology, pathology, dermatology, hematology, surgery, podiatry, dental clinic, and emergency room. These images, which include true color and gray scale images, scanned documents, and electrocardiogram waveforms, are stored on network file servers and displayed on workstations located throughout a medical center. All images are managed by the VA's hospital information system (HIS), allowing integrated displays of text and image data from all medical specialties. Two VA medical centers currently have DHCP Imaging Systems installed, and other installations are underway.

VISUAL CHART DISPLAY SOFTWARE

The goal of the VA's DHCP Imaging System is to provide image and text data in an integrated manner that facilitates the clinician's making of patient care decisions in a timely and accurate way. This system is oriented toward providing the treating physician with a complete view of patient data, at the same time allowing consulting physicians to have access to the full range of data.

Clinicians use workstations to view screens of "thumbnail" images for all studies or procedures performed on a selected patient. This display option allows the user to interactively indicate radiology exams or individual images to be displayed in greater resolution. Radiology images grouped by examination are displayed first as thumbnail images, for further selection of full images for full resolution viewing. This software will be demonstrated.

HIGH RESOLUTION RADIOLOGY VIEWING STATION

A new capability of the DHCP Integrated Imaging System is support for a diagnostic quality high-resolution megapixel DOME display adapter (Md2K/EISA) and an Image Systems portrait-mode monitor (M21PMAX). The hardware will support a 1728 x 2304 16-bit gray scale image, for example a 14" x 17" chest digital xray. This state-of-the-art display technology is completely integrated with the DHCP Imaging System and provides support for teleradiology. The various capabilities of the display, including window/leveling, zooming, panning, and magnifying, will be demonstrated.

TELECONSULTATION

All VA medical centers and other VA facilities are connected by a wide area packet-switched network. The VA's electronic mail software has been modified to allow inclusion of binary data such as images in addition to the traditional text data. Medical reports can also be included in mail messages, and patient data can be transferred from the hospital information system at one medical center to another. Testing of the use of multimedia electronic mail for medical teleconsultation is currently underway at two sites. Multimedia mail consultation software will be demonstrated.

SUMMARY

The V.A. has emphasized integration in developing its hospital information system and in integrating text and image data. We believe there is a critical mass where systems work together to provide many more benefits than non-integrated systems.

0195-4210/94/$5.00 © 1994 AMIA, Inc.