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Interview with Jonathan Elion

Interviewee

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Tell Us About Your Professional Background.

. I went to Brown University for college and Medical School, trained in Internal Medicine at the University of Wisconsin, and in Cardiology at Duke University. I have been involved in computers since 1968, and continued to be active in the field during my medical training. I began my research in medical image processing in 1983, developing techniques for Digital Subtraction Angiography, Digital Echocardiography, and “parametric imaging” (encoding physiologic information into images as color overlays). I have been actively involved in developing and applying standards to cardiac imaging and information, serving as co-chair of several key committees including DICOM Working Group 1 for Cardiovascular Information, Integrating the Healthcare Enterprise (IHE) Cardiology Planning Committee, and HL7’s Special Interest Group in Cardiology Coding. I co founded Heartlab in 1994 along with Bob Petrocelli, an engineer who was working in my research lab.

What Led You to Pursue a Career in Healthcare?

. I always wanted to be a doctor, and never wavered from that path. When I began college, I added an interest in computers, and have continued to pursue both interests ever since. I continue my clinical activities as a Cardiologist on a limited basis, and have had the good fortune to be able to combine my clinical and technological interests. As part of my work on the DICOM standard, Bob Petrocelli and I recognised an opportunity to establish a commercial presence to fill a much-needed niche in the market (PC-based image review), and that launched our efforts into industry.

If You had to Choose a Different Career, What Would that be?

. Well, if I had it to do all over again, I would pick the same career! But I confess that I love music, especially playing the guitar, and would probably pursue that path if I had to choose a different career.

Who has Inspired You Most in Your Career?

. Among the many excellent role models and mentors I have encountered, my greatest inspiration came from my father's sister, Gertrude Elion, who won the Nobel Prize in Medicine in 1988 (see http://nobelprize.org/medicine/laureates/1988/index .html). A gentle lady with an insightful mind, she helped me see my way through difficult scientific, technical, moral, and ethical concerns. She was always gracious in acknowledging the contributions of others, and was apt to say, “It’s amazing how much you can accomplish if you don’t care who gets the credit”.

What has Been Your Biggest Career Success?

. DICOM Working Group 1 worked to adapt the DICOM standard to cardiac imaging, bringing order to the chaos that existed at that time with regard to the variety of proprietary formats that were being used for image storage. We sponsored the first demonstration of the use of the DICOM for cardiac imaging in March 1995. I wrote software that was later put into the public domain and created the set of reference images and CD-ROM that were used by 29 vendors to exchange and display

images from cardiac catheterisation and echocardiography. In a very real sense my work on this demonstration project began the DICOM era in cardiac imaging, and created the market into which Heartlab sells.

What are Your Predictions for Improvement of Clinical Management of Cardiovascular Disease?

. Hospitals are under great pressure these days to reduce costs and improve quality. There are at least three emerging trends that will help in these areas: clinical pathways that help to formalise our approach to clinical care, performance measures that help quantify the effectiveness of our treatments and Computerised Physician Order Entry (CPOE) systems that assist in managing the orders that implement care plans. Together, these approaches can be applied to developing disease management programmes. The areas that are being addressed most commonly in Cardiology include Acute Coronary Syndrome (ACS) because of the seriousness of the clinical condition, and Congestive Heart Failure (CHF) because of expense associated with caring for this population.

What Areas of Medical IT will Impact on the Imaging Industry in Years to Come?

. I believe we will continue to see the elimination of artificial barriers that exist between digital images and the rest of clinical data. Imaging will continue to be managed and merged with clinical data rather than being in a separate system.

How can Efficiency be Increased in Cardiology Departments?

. It is a great challenge to collect and report on all of the information related to a study such as cardiac catheterisation. Heartlab's suite of products allows a hospital to implement more efficient workflows of patients and information. In some cases, it is possible to get a finished and signed report completed within minutes after completion of the cardiac cath. By feeding reports directly into a Hospital Information System, results can be quickly disseminated to everyone involved in the care of the patient. On the imaging side, our highquality digital storage and review, together with our ability to provide this capability on low-cost personal computers and workstations helped to move coronary angiography from film to digital. We are seeing a similar transformation as echocardiography moves from videotape to digital. We hope to see a similar shift in EKG management as we move from paper-based to digital workflow.

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