

The Integration of Medical Imaging and Information Technology: Soarian Cardiology Holds Key to the Future of Cardiac Care

Interview with Tim Attebery, CEO

South Carolina Heart Center, Columbia, SC, USA



Information technology (IT) and medical imaging make a unique pair when it comes to patient care and diagnosis, and in the extremely dynamic field of cardiology, emerging imaging technologies are playing an expanding role in presenting physicians with new information on which to base their treatment choices. The integration of IT and net-

working, imaging, and monitoring products can create solutions that help hospitals address three important needs: 1) improved quality of care, 2) critical time-savings through improving workflow efficiency and 3) anytime, anywhere access within the healthcare enterprise to full electronic medical records with built in knowledge-based elements to help minimize the risk of errors.

Although enhancing workflow and improving patient care may appear to be contradictory goals, they actually fit together quite nicely. Time is critical for cardiac patients, when clinicians are given the tools they need to move rapidly, and accurately, from diagnosis to treatment, enhancing the patient's chances for recovery. The most important tool to help them achieve this is information access when and where they need it.

Advancements such as Siemens Soarian™ health information solution for the enterprise, launched in October 2001, help integrate patient information across multiple clinical and business processes. Soarian Cardiology, launched in March 2002, provides a dynamic, holistic information solution specifically designed to address the clinical, financial and operational workflow challenges of the cardiac care team.

In a departmental setting, Soarian Cardiology allows users to build a continuous, comprehensive electronic patient record that includes medications, lab results, images, ECG, physiological waveforms, and documentation.

One real-life example of the power of integrated, accessible patient information is at the South Carolina Heart Center (SCHC). Situated in Columbia, South Carolina, the outpatient hospital and clinic consist of seven facilities, which are connected and are staffed by 240 employees. The doctors at SCHC's main office see an estimated 200-250 patients a day with a variety of heart conditions. Thanks to support from the Siemens Medical Cardiology and Global Solutions teams, electromedica recently had the opportunity to speak with Tim Attebery, CEO of South Carolina Heart Center, regarding the benefits of Soarian and information technology within the hospital.

electromedica: *Why is it important to have dedicated heart hospitals?*

Tim Attebery: There are several reasons for a dedicated heart center or hospital. First, we are at a very critical point in the healthcare industry. Baby Boomers are getting older and each year, they are entering the healthcare system in higher numbers, with cardiology being the largest slice of the healthcare pie. Secondly, in the last 20 years, we have seen a change in the type of patient that presents with cardiac disease. These patients have a greater awareness of cardiac disease and heart attacks, which ultimately lead patients to seek care at an earlier age. So, we now have patients with earlier presentation, greater numbers of people with cardiac disease, and more people surviving the first episode of heart disease, which leads to people living longer. These changes prompt the question of how do we care for the millions of people in a high quality, high service fashion?

In our society when there is a demand or a need, it is often met. Well, today there certainly is a need within the healthcare system for more capacity for cardiac services to deal with the growing demand. We can meet this demand through better efficiency. By maximizing every resource within in the system – the physicians, nurses, and clinicians – we can see more patients and meet the demand.



Fig. 1
Outside view of the
South Carolina Heart Center.



Fig. 2
Lobby and reception desk
in the heart center.

If we don't have the dedicated heart hospital, which, in my opinion, is the place to provide a more efficient method for cardiac care, we are not going to be able to provide the care that is needed. Heart disease is incurable. Of course certain aspects of the disease can be delayed, but there is no true cure for heart disease. Faced with this reality, we can either find more efficient ways to meet demand or we need to start telling people that we will ration care. Patients don't have time to wait because of the progression of their disease.

Finally, the changes in the healthcare industry are not limited to the United States. We are experiencing the aging of the world. Heart disease is a human problem, not just an American problem. There are over 6 billion people in the world and each area of the world has had a baby boom at a different time, so while we are facing the increase in patients today and in the next few years, others countries, such as Asia, may face this very same patient care dilemma in ten years. Developing a model that serves the need is where the healthcare minds, such as those at Siemens Medical Solutions, are going.

electromedica: How long has SCHC used Siemens' Soarian system or other IT solutions?

Tim Attebery: We have used Soarian at SCHC since the beginning of August 2002. Other IT solutions used at SCHC have been on the financial side. Soarian is our first true, integrated approach to managing clinical data.

electromedica: What were the needs or issues that you wanted to address with this project?

Tim Attebery: We had several issues that we wanted to address through the implementation of IT solutions and Soarian. The first is improved quality of care. For us, it was critical to have one place where clinical data could be housed so that everyone in the chain of patient service could have access to it in real time. By implementing this

system, all patient information will be available, as opposed to information fragments, such as a few pages of a report or a phone call between doctors. Currently, throughout the healthcare system physicians are making decisions with limited data. An organized clinical record provides the optimal information needed to make virtually every decision. This is the goal we're working toward.

The second reason was to create a more efficient system, which would allow us to provide more patients with access to service than we did in the past. Picture, for a moment, that the current field of cardiology can be represented as a funnel. At the mouth, or widest part of the funnel, are the millions of people with heart disease, the smallest part of the funnel represents the number of cardiologists available to treat the patients. Remember that the flow through the funnel cannot be any faster than the smallest part of that funnel. This is where the state of cardiology is now with a limited number of cardiologists to provide service. Yet, there continues to be the huge demand for care.

Soarian and other IT solutions are designed to take the narrow part of the funnel, I just described, and create capacity by improving the workflow in that environment. We can buy more cath labs or beds by writing a check, which allows us to add capacity on the hardware side, but we are missing the capacity on software side – information needed by the brains and hands that it takes to do the work and use the equipment.

We are looking to Soarian to be a bridge between providers and that hardware to meet the patient's needs. It links the cardiologists to the health information system so that their service can be improved. Productivity is then enhanced through efficiency. Even if it is only a small change or improvement, it makes a difference to the patient.

electromedica: *How are Soarian or other Siemens IT solutions used at SCHC?*

Tim Attebery: Currently, we have Soarian installed in the cath lab. We will be expanding it into the nuclear and echo modalities shortly.

electromedica: *How many facilities are part of SCHC? How is information shared between these facilities?*

Tim Attebery: We have seven offices in all with the majority as regional offices serving the midlands (middle) of South Carolina. Currently our facilities are linked through a network. Our plans are to move toward a web-based system for data storage, which will have security measures in place to protect the confidential patient data. We have a cath lab in the main office and work with other facilities throughout the state. We would eventually like to introduce Soarian to these facilities.

electromedica: *How has IT impacted the ability to communicate between facilities, and how does this impact the patient?*

Tim Attebery: Integrated IT solutions like Soarian Cardiology eliminate the wasted time and redundancy of the current system where patients are often asked the same questions again and again.

For example, when a patient has a procedure in our cath lab, the real-time information is helpful when the patient needs to be moved to another facility for additional procedures. That is, Soarian Cardiology enables the findings of the procedure to be communicated in the same period of time that it takes a patient to move to the next facility.

In a pre-Soarian situation, if a patient were to move from SCHC to another facility, only limited information would go with that patient – a copy of the report, the films on the CD or a conversation between two physicians. Neither is as good as all of the data going with patient in real time.

Ideally, either the patient and the data should move through the health system at the same rate, or the data should precede the patient's arrival at the facility, so the provider can review the information before meeting the patient. If the patient gets to the facility before the information does, as often is the case without Soarian, more time is wasted filling in blanks and the patient needs to answer the same questions all over again. The data is often recreated while waiting for the patient file. Soarian allows for limited mistakes and duplication of efforts because the information is accessible any time and anywhere.

electromedica: *How has Soarian helped improve workflow/diagnostic ability?*

Tim Attebery: Soarian stores patient information in one place, so care team members can access and review

it. This eliminates redundancy and guesswork, allowing physicians to make quicker, more informed decisions and to see more patients. Soarian increases efficiency, which is critical at a heart center, where seconds count in patient health and survival.

electromedica: *Does the improved workflow help revenue?*

Tim Attebery: I think that the improvements in revenue are a calculation of both capacity and efficiency. With the thousands of cathes we do at SCHC, the smallest workflow improvements can enhance revenue by enabling greater efficiency. Real-time information sharing, increased information flow and the elimination of duplicated efforts will impact the bottom line of any facility. For example, simply increasing the number of cath procedures we do in a week by one – that's 52 more in a year – would increase revenue. As we continue to use Soarian, we think we will see a larger improvement than one a week, but the basic answer is that any improvement to efficiency and productivity will impact revenue.

electromedica: *What benefit does increased IT and understanding of IT have in a heart hospital?*

Tim Attebery: I think that there are many levels at which IT and the understanding of IT will impact a heart hospital. The first is a vision of understanding/commitment that affects the environment. We are coming to a point where employees, vendors, customers and patients understand that IT is part of the healthcare service. For employees, environment has a tremendous impact on how he or she feels about the job. So if IT can be a strategic way to enhance an environment – making it more productive and less frustrating while enabling the clinical team to do clinical work – more people will want to work there. More physicians lead to having more patients cared for at that facility.

The second is the ability to serve the patient. The ultimate test of any IT solution is what happens to the patient. If more people can be served, patients are happier. Access to care is a characteristic of satisfaction. For example, if your grandmother needed to have a cath and you entered a facility where IT made the care more seamless, you'd feel better about the experience. Generally, IT helps the heart hospital because it helps attract the best doctors and then they can provide a higher level of care to the patients.

electromedica: *Why are medical systems like Soarian important to the future of medical treatment?*

Tim Attebery: There are two levels to this answer. The first is that which we have begun to see with products like Soarian – the real-time access to patient information – will allow doctors to treat more patients efficiently and effectively.

The second level is where I think we are headed. It builds off of the idea of real-time access to patient information. If information about your condition and treatment is accessible to another doctor at any time, then this information can be used to help other doctors decide how to treat a patient halfway around the world.

It's like when you hear on the news about the parents of a child with a deadly disease who went onto the Internet and read about another family miles away and contacted that doctor to learn about some other form of treatment. Well, ten years ago – before the Internet – only a small handful of people could access that clinical data or research medical conditions. Today, anyone with the appropriate clearance and permission has access to this information. Imagine the scenario if the parents previously mentioned did not have to go to the web because once the doctor typed a few characteristics of the disease into a database, he or she was automatically connected with the records of a patient with the similar condition and could read how that doctor treated the patient. Imagine the efficiency and time savings that we would have with such a system. The integration of technology and data mining leads to better service because the analysis is provided in real time.

electromedica: Will a system like you described lead the healthcare community to lose the art of medicine?

Tim Attebery: No. The art of medicine has been around since the dawn of time. Special people who combine knowledge with the interaction with humans to come up with solutions can never be replaced. But if I am the doctor at the center of a decision, I would want the benefit of more science rather than art. There will always be a subjective component of medicine that we will not understand, but the smarter the doctor is before the decision is made, the better the decision.

The advances in technology will surround scientists with the best access to current data about the patient and about the options that might match the patient's situation. The benefit of the data and the workflow enhancements creates a more efficient healthcare system. Soarian is the early stage of this new era of healthcare.

electromedica: Tim, thank you for this interview.

Literature

- [1] Bocionek S, Brandt S, Cseh J, Haskell B, Rucker D, Thomas D. Built for Success: The new Clinical and Financial IT Solution from Health Services. *electromedica* 2001; 69: 76-81.

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*Soarian [1] and Soarian Cardiology are products of Siemens Medical Solutions Health Services Corporation, Malvern, PA, USA. For further information on the products mentioned in this interview please contact www.smed.com.