



Proven Outcomes with Totally Integrated Radiology

Diagnostic Radiology Consultants, P.A.,
Specialty Networks, L.L.C. in Chattanooga, TN, USA

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During the past 10 years, medicine in the United States has experienced a trend toward decentralization, with outpatient care becoming more and more the norm. While this has resulted in cost-efficiency, it has unfortunately also resulted in a loss of communication between healthcare providers as well as slower turnaround times. A group of radiologists in Chattanooga, Tennessee, not only recognized this trend, but decided to do something about it. With the aid of Siemens Medical Solutions technology, they have managed to integrate a complex, multistate and multisite radiology practice into a unified environment, which has resulted in increased speed, simplicity, flexibility and profitability and, most importantly, improved patient care and safety.

Founded more than 50 years ago, Diagnostic Radiology Consultants (DRC) is a private practice group of ten radiologists who read and interpret approximately 200,000 cases per year, generated from multiple sites across the Greater Chattanooga and northern Georgia region. As they would travel from site to site to interpret images, DRC radiologists found

themselves changing IT platforms with virtually every facility they visited. The variety of Radiology Information Systems (RIS), Picture Archiving and Communication Systems (PACS), and postprocessing systems they were using was causing confusion, inefficiency and delays. To complete a case, a radiologist could deal with as many as four different platforms, one for RIS, one for PACS, one for voice interpretation and yet another for post-processing functions. In many cases, this involved moving back and forth among several workstations, each with a separate logon and password. Adding to the inefficiency was the fact that the radiologists were often unable to view PACS images that were taken at a facility with a different PACS. Since the transcription systems weren't integrated with the RIS, the radiologists had to re-dictate patient information before even beginning the body of their reports.

The challenge: An enterprise-wide solution

The radiologists of DRC began discussing the benefits of an enterprise-wide integrated solution at all the facilities they service. They decided to try to find a vendor that offered a solution in which RIS, PACS, postprocessing and transcription came together in a comprehensive package. If such a product existed, they talked about implementing it at all of the facilities at which they interpreted. From that idea, Specialty Networks was born – a corporation that would become the IT arm of DRC.

“We immediately began to assess the technology that was available to serve our goals,” said Dr. James M. Busch, Director of Specialty Networks and Radiologist and Director of Informatics for DRC. “Not only did we want to find a vendor that would be a good partner and offer



an enterprise-wide solution, but also one that was looking down the path of integration for the future.” From Fall 2004 until Summer 2005, Specialty Networks conducted vendor evaluations, and in the end, chose Siemens Medical Solutions.

“Siemens was the only vendor that offered exactly what we were looking for, and also was interested in continuing to refine the integration of the various software platforms that radiologists use to do their jobs,” said Dr. Busch.

The solution: A comprehensive IT Solution

Specialty Networks chose *syngo*® Suite, a comprehensive IT solution from Siemens that provides integration at the RIS, PACS, postprocessing and transcription levels. On the RIS end, *syngo* Workflow manages all processes for the exchange and distribution of patient data and images from end to end. The PACS applications for diagnostic preparation, quality assurance and diagnostic interpretation are bundled into *syngo* Imaging. *syngo* Voice is the component of *syngo* Workflow of-



Dr. James M. Busch, M.D.



We see a way to increase radiologist productivity by up to 27% using integrated RIS/PACS solutions

Results may vary. Data on file.



fering voice recognition and transcription solutions within *syngo Suite**. Specialty Networks chose Siemens' partner NextGen Healthcare Information Systems, a leading provider of electronic medical record and practice management solutions, to provide its electronic practice management (EPM) solution. Siemens had been working closely with NextGen to streamline the patient experience from patient access to diagnostics through treatment. The NextGen EPM solution has been completely integrated with *syngo Suite*, extending the comprehensive IT solution to include scheduling as well.

Thus, with one keyboard, one mouse and a single password-protected logon, *syngo Suite* would cover the entire imaging process for Specialty Networks, from patient registration to diagnosis to image distribution. With *syngo Suite*, the radiologists of Specialty Networks would finally be able to communicate with each other, and with technologists, clerks and referring physicians in a uniform, consistent manner at all times.

**syngo Voice* is available only with *syngo Workflow SLR*.

General Information:
Diagnostic Radiology Consultants, P.A., Specialty Networks, L.L.C.

Sites:

Specialty Networks Interpretation and Data Center

- PET-CT Center of Chattanooga
- Battlefield Imaging
- Galen Imaging
- Plaza Urology Group
- Chattanooga Bone and Joint
- Pulmonary Diagnostic Center
- Tennessee Imaging and Vein Center
- Insight
- Hutcheson Medical Center

Installed Systems:

- *syngo* Imaging
- *syngo* Workflow
- *syngo* Imaging XS
- *syngo* Voice
- *syngo* Portal Radiologist
- NextGen
- 6 TB short term archive
- 7 TB long term archive

Modalities:

- 2 PET-CT Siemens Biograph 6 and 16
- 4 MR, incl. Magnetom Espree 1.5T Open Bore
- 3 Multi Slice CT, incl. Somatom Definition Dual Source
- 8 Ultrasounds incl. Siemens Sequoia
- 3 Mammography units incl. Siemens Digital Mammography
- 5 Nuclear Medicine incl. Siemens Orbitor and DICAM
- 16 further scanners for CR, DR, Angiography and Fluorography
- 10 Radiologists
- Over 200,000 examinations per year



“I’ve been in radiology since 1978, and this is by far the best system I’ve ever used. It’s easy to use, easy to fix problems, and easy to train staff on. It’s just an excellent system.”

The success: Improved efficiency and patient care

Once Specialty Networks chose Siemens as a partner, they began arranging to deploy *syngo* Suite to the facilities where they interpreted studies. Specialty Networks chose Galen Imaging, which is the outpatient imaging center for the Galen Medical Group, as the first site to implement *syngo* Suite. With a total of ten locations spread throughout the greater Chattanooga and northern Georgia area, Galen was a perfect candidate in which to conduct volume testing, averaging 22,000 exams per year. In October 2005, Galen became the first successful go-live of Siemens RIS/PACS integrated with the NextGen EPM system.

The implementation was conducted as a phased installation to minimize the risk of downtime, and all the radiologists of DRC rotated their time at Galen so they could each train on the new system. Since then, the technology is currently being implemented in the remaining DRC customer sites, including the largest multi-specialty medical group in the Chattanooga region, a 300-bed community medical center, and one of the largest orthopedic groups in the area. They are in negotiations to add at least two more clients to their roster.

According to Dr. Busch, customers have been very enthusiastic about implementing the new technology at their facilities. “Installation week is always a bit difficult, because staffs have to learn to use the new technology and make adjustments to their workflow processes,” said Dr. Busch. “But they are eager to roll with it because they know that in the long run their jobs will be much easier and they will be more self-sufficient. They like the idea of having this cutting-edge technology at their fingertips.”

Janice Cooke, the RIS/PACS Manager for Specialty Networks, is amazed at how well the implementation has gone. “I expected that it would take at least a year to bring the first five sites online,” said Cooke. “The fact that this was accomplished in five months is incredible.”

Cooke attributes the success of the implementation to the team that Siemens provided to oversee the project. “Of course, there have been small hardware and software issues along the way, but the whole adventure has been overwhelmingly smooth. I’ve been in radiology since 1978, and this is by far the best system I’ve ever used. It’s easy to use, easy to fix problems, and easy to train staff on. It’s just an excellent system.”

Dr. Busch also credits the Siemens team for the success of the implementation. “Siemens was extremely accommodating and supportive.”

Reaping the Benefits of *syngo* Suite

According to Dr. Busch, Specialty Networks has already saved more than one radiologist Full Time Equivalent, and expects to save even more in the future. “I don’t think we’ve even remotely reached our peak efficiency with *syngo* Suite,” he said.

Specialty Networks has also drastically reduced turnaround time, from an average of 24 hours to 1 hour, and in some cases, just minutes. “Now, when we call doctors to give them reports, they often already have them in their hands,” says Dr. Busch. “*syngo* has really helped us to differentiate ourselves in the marketplace.”

Dr. Busch adds that making their practice more efficient has also made it more profitable. “The most expensive part of a radiology practice is the radiologist, so it is extremely cost-effective to do more exams with less staff,” said Dr. Busch.

syngo Suite has also contributed to improving patient safety and the overall quality of patient care. “With integrated RIS and PACS, patient demographics are already in the system and don’t have to be dictated again, which drastically reduces the risk of associating an image with the wrong patient,” says Dr. Busch. “We simply click on the patient’s name and go. This allows us to focus on the image interpretation, rather than being distracted by redundant documentation requirements. And the sooner we can

We see a way to enable radiologists to recover up to 29 hours per year by using embedded voice recognition technology

Results may vary. Data on file.



make a diagnosis and deliver a report, the sooner the patient can begin getting treatment for problems.”

To provide the highest quality of care possible, DRC has radiologist specialists who are experts at interpreting images of specific systems of the body. For example, their neuroradiologist interprets special images of the brain and neck. In the past, these images would have to be saved until the neuroradiologist rotated through that particular imaging facility. But now with *syngo* Suite, radiologist specialists can access patient images immediately using their individual worklists, no matter which facility they happen to

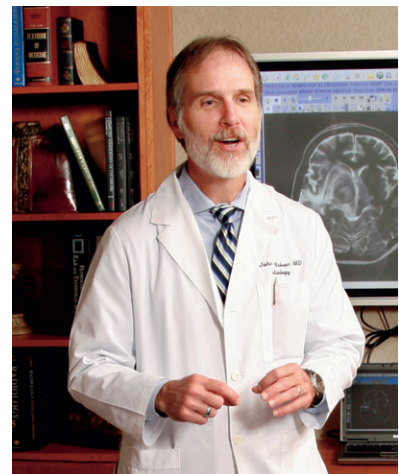


Rebecca Ratchford, Administrative Director of DRC

be working at on a particular day. This is an added benefit for both the patient and the referring physician.

Since the implementation of *syngo* Specialty Networks has also added *syngo* Portal Radiologist to its *syngo* Workflow RIS technology. A “cockpit” of sorts, *syngo* Portal Radiologist lays out on a computer screen all the tasks that a radiologist needs for his specific work processes. With a role based approach, *syngo* Portal Radiologist puts images and pertinent information right where the radiologist needs them, creating an environment that mirrors the way the radiologist prefers to work. Every element on the screen is expandable and collapsible, so the radiologist can manipulate how much or how little he wants to see of each item. *syngo* Portal Radiologist offers several advantages over the previous technology that DRC was using. “Probably the biggest benefit is that everything is concisely organized on one screen,” said Dr. Busch. “There’s no need to toggle back and forth between different views, or between old reports and new reports. Everything you need is right there on your desktop.”

“*syngo* Portal Radiologist also lets you create ad hoc workflows, which we



Dr. John Nelson, Radiologist

weren’t able to do in the past. If I am sitting at my computer reading an exam, and a fellow radiologist calls in for a consultation, I can go into an ad hoc workflow and call up his exam on the screen without interrupting the images I’m already working on or losing the dictation that I’ve already done. That’s a tremendous advantage in terms of productivity and time savings.”

Other functionalities in the *syngo* Portal Radiologist also are contributing to quicker turnaround and more efficient

service. For example, the Dynamic Loading function allows images to appear as soon as they are selected from the worklist, so radiologists can begin their interpretation before the entire series loads. This is especially beneficial with large exams. Sophisticated postprocessing tools, which previously would have required moving to another workstation, are now available in the same integrated system. Additional advantages of the *syngo* Portal Radiologist that Dr. Busch pointed out include the ability to create shortcuts and templates on the fly, and to obtain real-time feedback on productivity, improved search functionality, and better communication between radiologists and technicians. With its familiar look and feel for all modalities and workplaces, *syngo* Portal Radiologist is easy to learn, use and share. "The learning curve is very short, espe-

cially for those who are already familiar with the *syngo* environment," said Dr. Busch. I learned it in one day, but even for someone who had never used *syngo* before, I'd say the average learning time would be one to two days." "I like to compare *syngo* Suite to a stethoscope," said Dr. Busch. "It's a tool that can come with me, as a radiologist, wherever I go, similar to a family doctor and their stethoscope. It has also allowed us to provide a single imaging software solution where radiologists and other doctors can go to get everything 'imaging' that they need. This has brought back a sense of community among physicians that had been lost in recent years due to the decentralization of imaging associated with the increase in outpatient care.

"Securing Patient Privacy

Although *syngo* Suite transfers all images into a centralized PACS architecture, these images are segregated by location, with each facility driven by a different master index. What that means is that radiologists at DRC can view images from all the medical practices that they serve, but each medical practice has access only to the images of its own patients. To illustrate, this is akin to someone looking at the windows of a high-rise building and being able to see what's going on simultaneously on each floor, while the people on the individual floors can only see what's happening on their own floors, even though they are all in the same building.

"This segregation and regulation based on user privileges is extremely important for patient privacy," said Dr. Busch.

Integrating Imaging Technology – Now and in the Future

An interview with Dr. James M. Busch

What further steps are you planning with *syngo*?

We want to expand the role based workflow allowed with *syngo* Portal Radiologist by implementing access portals for referring clinicians. Web-based portals would allow medical practices to link into a hospital or other imaging provider's diagnostic and therapeutic workflow.

What expectations do you have of the new portals?

They would give DRC a huge marketing advantage. Portals would allow us to provide referring doctors with greater conveniences in terms of scheduling and obtaining reports.

Would this help to secure a competitive advantage for Specialty Networks?

Yes, these factors play a great role in deciding where doctors refer their patients for imaging.

How has your partnership with Siemens been beneficial to Specialty Networks?

There is much being said about the need for greater IT adoption in healthcare and the integration of imaging and IT, but Siemens is the vendor that is making it happen and meeting our business model needs today. From a standalone imaging center perspective, having RIS/PACS inter-operating with an EPM system provides a complete solution for managing our imaging workflow – from scheduling and registration to interpretation – and that is what we've achieved through our partnership with Siemens.

"I like to compare *syngo* Suite to a stethoscope. It's a tool that can come with me, as a radiologist, wherever I go..."





The challenges

- Improve and secure communication between healthcare providers despite decentralization
- Improve turnaround times and reduce the risk of medical errors
- Implement an enterprise-wide integrated solution for all facilities
- Find a vendor offering a solution in which RIS, PACS, postprocessing and transcription are integrated in a comprehensive package

The solution

- Integration of a complex, multistate and multisite radiology practice into a unified environment with *syngo Suite*, a comprehensive IT solution from Siemens that provides integration at the RIS, PACS, postprocessing and transcription levels
- Extending the comprehensive IT solution to include scheduling and billing with NextGen EPM
- Implementation of the web and role based *syngo Portal Radiologist*

The success

Increased speed, simplicity, flexibility, profitability and improved patient care and safety through the implementation of *syngo Suite*

Savings on cost and time through:

- reduction of more than one radiologist FTE
- reduced turnaround time from an average of 24 hours to 1 hour or less
- quick access to patient images from any facility

Greater efficiency in productivity and workflow with *syngo Portal Radiologist* through:

- ad hoc workflow
- concisely organized information on one screen
- quick access to images with Dynamic Loading
- the ability to tailor individual configurations
- short learning curve with common user interface
- improved communication between radiologists and technicians



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Janice Cooke, RIS/PACS Manager for Specialty Networks:

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