

# Digital Pathology Systems Will Create Opportunities

► **Community pathologists discuss benefits of being early adopters of digital pathology**

►► **CEO SUMMARY: Advanced Pathology Associates, a 15-member private pathology group practice, had the distinction of generating data for the clinical study that Philips submitted to the Food and Drug Administration for review of its whole slide imaging system. Following the FDA's decision to clear this system for sale earlier this month, and informed by their study experience, the pathologists at APA are interested in acquiring this system. They expect it will help them expand case referrals, among other benefits.**

**N**OW THAT THE FDA HAS CLEARED the first digital pathology system for use in the primary diagnosis of biopsied and surgically-excised tissue, every pathology group and pathology lab must answer this important question: Should we wait or adopt early?

One pathology group that made the decision to be a first-mover is **Advanced Pathology Associates (APA)** in Rockville, Md., which is interested in acquiring this digital pathology system. It manages a central pathology reference laboratory and its 15 pathologists cover seven hospitals.

## ► **Digital Pathology Benefits**

“For pathologists considering this investment, the most obvious benefits of digital imaging systems are the promise of improved workflow, the ability to consult remotely, and fewer lost or broken glass slides,” stated Nicolas Cacciabeve, MD, APA’s Managing Partner. “However, whole slide imaging systems offer other advantages that are less obvious, but also significant.”

In 2015, Cacciabeve’s group used the **Philips** Intellisite Pathology Solution

(PIPS) as a community pathology group practice study participant to generate data for the pre-market application that Philips submitted to the FDA. Last month, the agency cleared the system for sale to pathologists. (See *TDR, April 24, 2017.*)

“Because we had the opportunity to be hands-on with this digital pathology system, we saw how it changes daily workflow, improves the ergonomics of reading cases, and contributes to increased productivity,” noted Cacciabeve. “Its use also opens new opportunities for our pathologists to add more value—whether it is handling more complex cases through real-time consultation or through better data management and image retrieval, or freeing up pathologists to get out of the lab to collaborate with clinicians.

“We know these benefits are possible because of what we learned during the trial,” he said. “We learned, for example, that the PIPS can produce and manage a lot of images. That was important to us.

“For the trial, we had 500 cases and, for those cases, we scanned several thousand slides,” he explained. “During the nine-month trial that ran from April 2015

until February 2016, we had few slides that didn't scan. "Operationally, that told us the platform was stable and ready for real-world use because we didn't have software or technological scanning breakdowns that would stop production.

### ➤ Improving Workflow

"Our practice manages a reference laboratory where the slides were scanned," he said. "We wanted to get used to incorporating digital imaging into our workflow. We scanned slides overnight and found there was no slow down. The images were ready for us the next morning, which told us that we could incorporate digital imaging into our workflow without a problem.

"One change we're considering once we have our own PIPS involves looking at our current process of producing slides in large batches," Cacciabeve added. "Our lab manager began his career as a histology assistant technologist and has over 25 years in the field.

"With a digital pathology system, we plan to move to more and smaller histology batches each day so that the flow is almost continuous," he said. "If we do it that way, we will shorten the time required for histology images to get to a pathologist, which would be a big improvement over our current system of delivering slides by courier.

### ➤ The Value Equation

"Clearly, there are many advantages to using digital images, and perhaps the only disadvantage is the cost of these systems," stated Cacciabeve. "That's something we'll evaluate. We'll add the cost of the equipment, but we can subtract courier costs.

"Then, we'll look at the cost-to-value ratio," he explained. "Specifically, we recognize that, even if scanning slides to create the digital images costs more money, we may get back more in value—either through new opportunities in business or through a better quality product. We will evaluate that over time."

## About Advanced Pathology Associates

**A**DVANCED PATHOLOGY ASSOCIATES IN Rockville, Md., is a community practice of 15 board-certified pathologists serving seven hospitals in suburban Maryland and Virginia.

"We also manage an anatomic, centralized pathology reference lab and provide medical directorship for a proteomics laboratory and for a molecular laboratory," said Managing Partner Nicholas Cacciabeve, MD. "We have specialists in cytopathology, gastrointestinal pathology, head and neck pathology, hematopathology, ob-gyn pathology, and pediatric pathology."

The 17-year-old practice serves the following hospitals in Maryland:

- **Shady Grove Medical Center**, Rockville
- **Washington Adventist Hospital**, Takoma Park
- **Laurel Regional Hospital**, Laurel
- **Prince George's Medical Center**, Hyattsville
- **University of Maryland Charles Regional Health Center**, La Plata

In Virginia it serves these hospitals:

- **Reston Hospital Center**, Reston
- **Stone Spring Hospital**, Dulles.

APA's pathologists saw an opportunity to use digital pathology to change their existing practice model to increase case referrals and expand subspecialty offerings. "Networks of digitally-linked pathologists with sub-specialty expertise can provide consultations to smaller hospitals, which, in the past, had to send pathology consultations to academic centers," Cacciabeve explained.

"Based on our experience in working with digital imaging, we believe its use will ultimately make pathologists more efficient and improve accuracy in their diagnoses," he said. "Primary diagnosis using digital images is just the beginning.

“Digital imaging of tissue is the foundation of ‘computational pathology’ or the application of computer software algorithms to the digital image that will highlight or even recognize patterns predictive of disease,” he suggested. “This information can be quite useful to a pathologist evaluating tissue.

“In addition, molecular markers producing signals identifiable in the digital tissue image can inform our clinicians of the correct therapy, such as a chemotherapeutic drug most effective in patients with the molecular marker identified in a tumor,” Cacciabeve added. “Pathologists will work closely with groups of physicians to prescribe treatments and predict outcomes.

“In the healthcare system of tomorrow that pays providers for value, pathologists will need to leverage the many other things we currently do in hospitals—such as managing data and working on quality initiatives—in ways that improve patient care and contribute to lower costs,” he explained.

“Digital imaging will change how pathologists access cases and make diagnoses,” noted Cacciabeve. “As the cost of imaging goes down, the traditional role of a pathologist in a small office with a microscope will change rapidly because digital imaging will allow pathologists to share and consult on cases nationwide, even if the pathologist is working in a community hospital or a small town.

### ► Easier Collaboration

“In the past, we would have shipped slides to consulting pathologists, which adds time and expense,” he commented. “Alternatively, the logistics and costs of getting a group of pathology experts together to review cases in real time is prohibitive. With digital images, these are no longer limiting factors.

“Not only will the pathology profession benefit, but individual pathology groups will benefit from digital imaging as well,” added Cacciabeve. “For example, at

APA, we offer ourselves as a group that collectively has a lot of experience and expertise in pathology. The digitization of pathology images that a virtual network of pathologists can access, share, and consult on in real time, will help generate substantial benefit, as well as potential new sources of revenue for our group.

### ► Lessons Learned

“In addition to the cost, there’s another factor that a pathology group evaluating digital pathology must consider: it takes time for pathologists to get comfortable with the software,” noted Cacciabeve. “In the beginning, our pathologists were not as efficient as they would become once they were familiar with how the system works. That’s a time-limited problem that will go away with practice, particularly with younger pathologists. Older pathologists may struggle a bit more.

“Another issue involves the technology itself,” he added. “Despite non-inferior performance against glass slides, in a few cases we would have preferred having more depth of focus. As the technology improves, that issue may go away.

“Having used the PIPS for nine months, we knew there would be some disadvantages, but the advantages outweighed them,” he said. “Having accepted the premise that digital pathology is coming whether we want it or not, we want to participate in it.

“I tell everyone in my practice: The only thing I can promise is that things will change,” he said. “If you fight change, you will not succeed. You have to be willing to adapt to change.

“It’s the same with digital pathology,” continued Cacciabeve. “As pathologists, if we focus on finding the best way to deliver patient care, then we’ll embrace change as it comes and digital pathology systems will improve quality and make us more efficient.”

**TDR**

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