In anatomic pathology labs, a balancing act

August 2023—Anatomic pathology laboratories—the pressures, the promise of technology to alleviate them, and the seemingly unprecedented rates of change. CAP TODAY publisher Bob McGonnagle gathered pathologists and company representatives online on June 21 to talk about it all.

From pathologist coverage to IT, from tumor boards to questions job candidates in pathology should ask, here’s what they told us.

**Katie Robertson, where is the focus at Roche now for your anatomic pathology customers?**
*Katie Robertson, PhD, disease area network lead—oncology, Roche Diagnostics: Our focus now is digital pathology, everything from implementation and scanners to third-party algorithms and our own algorithms.*

**Ghislain Noumsi, what about at Agilent?**
*Ghislain Noumsi, MD, MBA, SBB, global head of medical affairs CDx/pathology, Agilent Technologies: It’s digital pathology and how we can deliver an end-to-end solution that integrates different testing strategies in immunohistochemistry, molecular, and so on.*

**Jeff Prichard, how is the pathologist shortage affecting Geisinger?**
*Jeffrey Prichard, DO, division chief, anatomic pathology operations, informatics, and quality, Geisinger Medical Laboratories: We’re spread thin in trying to cover cytology and rapid onsite evaluations. We’ve moved to telecytology for pathologists to cover it centrally so we can have cytotecnologists in each of the sites across the state prepare slides and have the adequacy evaluations done by the cytotologist. We’ve had to stop our coverage of endocrinology rapid onsite evaluation.*

**Can you comment on subspecialty pathology as it’s practiced at Geisinger?**
*Dr. Prichard (Geisinger): We are partially subspecialized. Each of us has our own specialties, some larger and some smaller. We cover some of the larger ones as a group so we can make sure we have enough people to supply service. Each of us assumes one, two, or three different services. We can share coverage through telepathology across hospitals in the state and have subspecialists in different sites collaborating with each other. That’s how we’re able to provide the subspecialty service we have.*

**Ari Rao, what’s top of mind for you as a system chief?**

Dr. Rao

*Ari Rao, MD, PhD, senior vice president, BSW system chief pathology and lab medicine officer; endowed centennial chair, Scott and White Clinic Pathology, Baylor Scott & White Health: As a system we have three groups of pathologists, an employed group and two private groups. Trying to standardize among the three groups is a key task for me as a system VP. For the employed group, which is present at 15 to 18 facilities across the state with more than 300 to 400 miles between each one, telepathology coverage and using the available digital tools is important. At the same time, the courier system has to be robust because no matter how much digital you do, there’s a need to have a backup with slides. Standardizing that, organizing the histology lab and getting those workflows in place, having subspecialists get their slides and cross-covering others, getting transplant pathology coverage, weekend coverage, and enough pathologists to cover 24/7, and then maintaining quality on top of it and having system standardization for each of those metrics—all are a challenge.*
Pete Dysert, we are almost in a perfect storm for pathology. We have a shortage, growing clinical demands and needs for subspecialty expertise, and increasing technology and instrumentation costs. Is that a fair comment on what it’s like to be at the bridge of a large pathology ship these days?

Dr. Dysert

Peter Dysert, MD, chief, Department of Pathology, Baylor Scott & White Health: I’ll start by saying, If you don’t like change, I hope you like being irrelevant. There are forces at work causing change in all aspects of medicine, but in pathology at unprecedented rates. When I think about this, I begin with the process of medical education. Many of the challenges we have with staffing are directly related to the curriculum changes that have taken place in medical schools for pathology. The net result of those changes has put pathology at somewhat of a disadvantage in competing for people who see pathology as their future profession.

Looking at it through the training cycle, people seem to want to carve out and practice a subspecialty version of pathology that puts constraints on coverage. I’m also seeing a growing appetite for subspecialization on the clinical services side as clinical subspecialty organizations offer recognition and accreditation.

In addition, the demand for new technologies is growing; it’s an ever-changing field and landscape. We seem to be constantly behind in our ability to serve up those results through our LIS platforms, because as health care systems grow in size and scale, the change process is even more difficult. Yet those results are so important in the translation of that information for the care of the patient. I feel like I’m in the middle of a perfect storm and struggling to keep up and figure out how to deal with these issues and see them not as negatives but as opportunities.

Jeff, can you comment on what Pete described? Are you largely in agreement?

Dr. Prichard (Geisinger): Yes. I’ve spoken to the challenges of subspecialization and being spread so wide, and IT is going to be key to almost everything we do. IT is a form of automation we can implement to automate testing algorithms and share our telepathology expertise across the systems.

IT is being stressed from a human resources standpoint, even more so than pathologists and professional staff. We’re trying to get more and more out of them and with fewer and fewer people.

Suren Avunjian, your customers’ headaches are your headaches. Tell us what you make of the situation and what you suggest might give us relief at this time.

Avunjian

Suren Avunjian, co-founder and chief executive officer, LigoLab Information Systems: Reimbursement issues are adding to the perfect storm. Advanced and comprehensive technology platforms and the right kind of automation can offer solutions that directly address that challenge and the challenges of escalating costs and labor shortages. Innovative revenue cycle management technology solutions can provide critical support in dealing with declining
reimbursements. By leveraging advanced rule sets, strategies, and analytics, labs can gain better control of and insight into their technical and financial operations, identify areas of waste, and make informed decisions that enhance collections and profitability. Artificial intelligence and machine learning can play a crucial role in helping to mitigate the impact of pathologist shortages.

LigoLab integrated with BioImagene [acquired by Roche in 2010] as a digital pathology partner more than a decade ago. Since then we’ve established integrations with a host of whole slide imagers and developed an agnostic platform. This enables rapid integration with an array of digital pathology solutions and provides a marketplace layer for AI technology, tailor-made for different machine learning models and specific to each stain and specimen.

As more practices embrace digital pathology, these technologies will prove increasingly valuable. We’re seeing this trend among our pathology customers, many of whom have already initiated a digital pathology strategy or plan to within the next 12 months.

One of our key initiatives is developing a cloud-based EHR integration network. With this engine, customers that join LigoLab gain automatic access to all EHRs integrated into the cloud network. This happens without the need for individual labs to rebuild them. Point-to-point interfaces have created considerable struggle and costs within our industry. Our cloud-based integration engine aims to eliminate these pain points.

Ed Youssef, talk about the challenges of scale when you’re looking at a pathology operation that is across the state of Texas or Pennsylvania, as with Baylor Scott or Geisinger. It requires a lot of work on the vendor’s part, doesn’t it?

Ed Youssef, chief strategy officer, NovoPath: It does. At NovoPath our focus is the automation process. How do you automate the work for the functional teams within the lab? We’re studying the different workflows for each subspeciality to figure out where in the process we can automate as much as possible. The more we can automate, the easier it becomes to scale. As the organization grows, vertically or horizontally, once you deploy the automation, the system can take over and provide efficiencies for the users, which will help with the technologist and pathologist labor shortages. It also helps in certain subspecialties where there are highly technical workflows.

Megan McCartney, everywhere I go in the country, people report that histotechnologists are doing two, three, and four different jobs. Can you comment on that particular long-standing shortage?

Megan McCartney, MS, CT(ASCP)CM, HTL, manager of laboratory operations, cytopathology and histopathology, Baylor Scott & White Health: There’s a national shortage not just of histotechnologists but cytotechnologists as well, and the general public’s lack of knowledge about laboratory professions and the lab sciences is contributing to that shortage. We are in the background and not many people know what we do in order to produce what the pathologists need to make diagnoses. I think there’s a shortage, too, because people were forecasting several years ago that technology would take the place of humans in the laboratory—cytotechnologists in particular—and cytotechnology programs were closed. An educational outreach of what we do and the impact we have on patient treatment plans and patient care would greatly benefit our entire AP lab.

Dr. Rao, can you give us more detail on what the needs are in pathology today?

Dr. Rao (Baylor Scott & White): Many therapeutic decisions are being made differently than they were five years ago. There are new medications especially in oncology but also in other fields—cardiovascular disease and
degenerative brain disorders, for example. Every one of these fields is changing, and it seems like the areas of diagnostic medicine—pathology and radiology—are the canaries in the coal mine. The decisions that are changing medicine are hinging on what we can do up front, which means we have to do things more rapidly and use as much new technology and as many new markers as possible.

Then you throw in AI and possibly the new generative AI that’s taking over the world, and things are rapidly changing everywhere. Just a few years ago we were thinking, “Okay, we’re going to change pathology processes to have a hub-and-spoke model.” Now we’ve gone way beyond that in saying, “What is the fastest? Is it at each facility? Do we need to do everything everywhere?”

We seem to have to craft a new strategy for everything we’re doing. We’re treating breast biopsies differently. We’re treating some of the CNS cases differently because they need molecular results in two days. It’s not enough if we do something in two weeks; we have to do it in two hours.

Dr. Robertson

Katie, I’m interested in the Roche Navify system, which I saw at the ASCO meeting. It is supposed to help integrate some of the many people who have to be around a table to make decisions for patients. Tell us about it and how it will solve at least a small part of the puzzle we’re facing here.

Dr. Robertson (Roche): We hope the Navify solution can help bring together a tumor board. We’ll be able to bring the pathology and radiology results and case notes into one single-stop shop. The beauty of Navify is it will be like an app store. The molecular tumor board is one aspect of it that will include a clinical trial match app. It will also have an app for mutation profilers, for example. Physicians, nurse navigators, and technologists can use it as a one-stop shop and have patients’ past, present, and hopefully future at their fingertips. But it’s not that easy to do; in theory it is, but in practice it takes a lot of work. Labs are cautious because they want to know if it’s going to be burdensome to implement. We have people who are excited to try it, and it’s going to be beneficial for us once we have customers sharing their experiences with other customers.

Jeff, everywhere I go I’m told departments and pathologists are spending many hours a month in tumor board and case conferences. How are you coping with that type of schedule at Geisinger?

Dr. Prichard (Geisinger): We have 77 tumor boards a month across the system. It’s taking almost three FTE pathologists to cover those.

We tried Navify, and liked that it could’ve been a collaborative platform. You put your cases on for whichever tumor board—the nurse navigators were good at doing that—and then we can contribute the pathology, the radiologists can organize theirs, and clinical trials are built in. But we couldn’t integrate it with the rest of our EHR well enough to make it sufficiently efficient for the multidisciplinary groups to want to adopt it. So we have been watching it as it evolves. I’m excited about the possibilities of having that type of platform. Tumor boards take an inordinate amount of time from our pathologists, but being part of a multidisciplinary group is one of the most important things we do.

It is important that I point out for our readers that Navify is a relatively new initiative at Roche. Roche didn’t promise perfection out of the gate, and they’re working diligently to solve the different problems.

Pete, I was interested to hear that Geisinger has 77 tumor boards a month. I’m assuming you have similar demands on your pathologists for tumor boards?
Dr. Dysert (Baylor Scott & White): Yes, we do. At Baylor University Medical Center our numbers are between 400 and 450 multidisciplinary conferences a year. They line up with the outside definition of clinical centers of excellence that require these multidisciplinary meetings. As Jeff said, it's important that pathology be there, and we're highly valued by our clinical colleagues in those roles. But there's an increasing disconnect in the way the payer community is looking at what we do as pathology professionals.

There are large commercial lab organizations that give the impression that what we do is somewhat of a commodity. We're getting blended, from a pathology perspective, into that economic mindset, so they're simply looking at paying us for the report, though our obligations don't end when we sign out that report. They're ongoing.

The payer community is putting us at a bigger and bigger disadvantage. At the same time our clinical colleagues value us, and there's an opportunity to be valued even more in the future, based on our professional expertise. It's a real problem.

CAP TODAY published an article in the May issue on gene panels for oncology that had a subtext along the lines Pete is articulating—these are demands that are being placed on pathologists but there is no provision for recognizing the value they're adding, much less providing payment for it in a reasonable fashion. Ghislain, what are your thoughts about that at Agilent and your personal thoughts as a pathologist?

Dr. Noumsi (Agilent): I share the position that the regulatory and payer system has been slow in recognizing the value that some of the new innovations bring to the parties and the patient. The traditional system, the unit they use for measuring value, is outdated. That's one of the challenges we are facing as a company. We have difficulties now setting a path that we can apply to new biomarkers that we want to bring to the market for molecular testing. Again, the burden is at the payer and regulatory levels. We haven't figured it out completely. It will happen but at a slower pace than we anticipate.

Ed, is there an increased appetite for bringing gene sequencing in-house, with all its attendant costs and informatics needs?

Ed Youssef (NovoPath): We're seeing a lot of appetite for it. Labs want to bring it in; they believe it will improve the quality of care for the patient overall, especially with turnaround times regarding test results. The cost to bring NGS in-house is so high compared with the reimbursement, so it presents challenges. Unless you're a specialized lab in oncology and have the volume that can support it and make that equation work, it becomes more and more difficult. The labs we're working with are trying to figure out ways to maneuver between the cost and possibly partnering with other labs to share the volume. There is demand in the market and labs are thinking, “Is there a way to make this equation work?”

Suren, what are you seeing in terms of the demand to bring this in-house, recognizing the complexity of the technology, the IT, and the expertise of operators?

Suren Avunjian (LigoLab): I agree with Ed. We see the appetite in the general pathology labs we serve. A few have deployed in-house gene sequencing technologies but most are still in research and planning phases. We are observing an increasing interest in in-house genomic testing and seeing contracts from specialized laboratories that focus on genomic testing. The up-front investment for sequencing equipment can be substantial, not to mention the ongoing costs of consumables, maintenance, specialized personnel, and the informatics infrastructure.
As costs decline, in-house sequencing will become more feasible for many laboratories.

The informatics needs for gene sequencing extend beyond the sequencing process. Data management, analysis, interpretation, and storage require robust and sophisticated systems. The vast amount of data that sequencing procedures generate can be overwhelming, so having the right bioinformatics resources in place is critical. The data is also highly sensitive, requiring stringent security measures.

**Jeff, what's your perspective at Geisinger on bringing sequencing in-house?**

*Dr. Prichard (Geisinger):* Molecular has been our biggest area of growth for the past few years. Two of the last five pathologists we’ve hired are molecular genetic pathology [MGP] boarded and our molecular diagnostic laboratory has almost tripled its size in staff members. Currently more than 90 percent of NGS-based hematologic and solid tumor tests are performed in-house. We’re trying to keep up with the growth in that service. It’s clinician driven—they want it for treatment and prognosis purposes. I don’t know that we’re making money on it, but we’re losing less by doing it in-house than by sending it out, and that was the business model for our bringing it in. We have 18 organ-based and customizable panels for solid tumors as well as several hematologic neoplasm assays that each of the subspecialties is getting used to ordering, so the volume is growing rapidly. We’re recruiting more molecular pathologists to keep up with that. Even though it may be a money-losing proposition, it’s a money-saving one at the same time.

**One of the solutions to all these problems—people are trying it as a solution at least—is consolidation, whether you’re looking at vendors, IT companies, or providers. Dr. Rao, you’re covering an entire state. Is there such a thing as too much consolidation of providers or too large a consolidated entity?**

*Dr. Rao (Baylor Scott & White):* Yes. During the days of the pandemic we saw how you had to diversify, had to have multiple platforms just to keep up with supplies. It was dangerous to have one platform and no other options. Having said that, to a large extent the main platforms in our histology area are from Roche and Agilent. There are advantages to that in terms of flow-through and automation and maybe AI applications in the future. At the same time, you have to consider our technologists and the people who are on the equipment, how comfortable they are with each piece, and what advantages one offers over the other. It’s a constantly evolving field. It’s almost impossible these days to think of one solution, one vendor fits all. IT solutions for different components of tests vary—for example, biomarker testing with IHC, FISH, and sequencing are very different. How do you integrate those? And they all have to integrate with our EHR so our technologists are not doing everything manually.

The pandemic taught us not to depend on one vendor because supply chains are fragile. Megan, I’m assuming there is a large number of platforms and IT connections in your lab, not to mention the reference labs you also use. Is that correct?

*Megan McCartney (Baylor Scott & White):* Yes. Always diversify your assets to make sure you can get supply chain and demand whenever you need it. Have multiple backups, make sure you can take care of all your systems and patients, and have the vendor contacts so you can get them on the phone and out to fix whatever breaks.

**Jeff, is there such a thing as becoming too big? And when I ask that, I need to remind everyone that Kaiser Foundation Hospitals announced in late April that it acquired Geisinger.**

*Dr. Prichard (Geisinger):* We’re in a different position now than we were. We had expanded into New Jersey and picked up a couple of hospitals in Atlantic City. At that time, I had to split histology into two sites because you
couldn’t, depending on traffic, have the courier system work when you were stretched that far. Now with Kaiser largely based in California, what kind of collaborations can you get? I suppose a lot of it will be IT based. I don’t know that we can do any more physical consolidations that far apart, given my experience with having tried to work through New Jersey in Pennsylvania. You can get too big for some portions of the lab, but in others you might be able to use technology to gain efficiencies.

**Pete, what should a pathologist coming out of fellowship and looking for their first job ask about the institution at which they are interviewing?**

Dr. Dysert (Baylor Scott & White): The first thing I’d look for is the culture as it relates to the way pathology is practiced. Make sure you understand the values underlying the way that group or entity practices and sees pathology, because we’re all having to make decisions daily. That will then give you an idea of how they’ll approach the future. The job candidate needs to have a vision of the future and understand how they will rationalize and direct the way pathology will be practiced over their career. The culture is a surrogate for the values by which the leaders will make those difficult choices and priorities as this change continues to unfold.

![Dr. Prichard](image)

**Jeff, same question to you—what should this pathologist be looking for and asking about as they make their rounds for employers?**

Dr. Prichard (Geisinger): I’d expect them to be asking about our place and what type of staff we want and have, and what we are involved with in terms of research, teaching, and clinical work. I’d also be asking what kind of growth we are having. If it’s negative growth, that’s something, but if it’s positive growth, how much growth is there? How many new pathologists are you hiring every year? What is growing at your lab? We’re actively recruiting molecular pathologists, and that’s what I would expect them to be asking me.

**Dr. Rao, what should they be asking you about when they come to see you?**

Dr. Rao (Baylor Scott & White): From a system perspective, it depends on which facility they would be going to. If they’re coming into our more academic centers, their questions would be more academically oriented. What is your productivity? What are the ways to progress academically? What is the research support?

If they are going into the smaller, community-based facilities, then the questions should be, how are you prepared for change? Are you a growing institution? Because even in the smaller facilities you can’t afford for it to be a question of attrition; you want to be growing.

Additionally, I would ask, what is your investment in technology? Do we have digital pathology? Because those things are going to make a huge change in the way we practice day to day.