Panel weighs in on practices, pressures in heme labs

October 2021—*Rules, slide reviews, test ordering, and provider education were part of the conversation when CAP TODAY publisher Bob McGonnagle convened a hematology-focused virtual roundtable in late August. Workforce problems too: "We have a bigger exodus now and our pipeline is smaller," said Eric D. Hsi, MD, of Wake Forest University.*

With McGonnagle and Dr. Hsi were Natasha Savage, MD, Medical College of Georgia at Augusta University; Susan Behnke, MT(ASCP), MBA, Horiba Medical; Rachel Burnside, PhD, MBA, Beckman Coulter; Ken Childs, MBA, CellaVision; Ann Ludwig, MT(ASCP), Sysmex America; and Eeva Slattery, Abbott. Here's what they had to say.

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The last CAP TODAY hematology roundtable was two years ago, and those who took part talked about reducing the rate of the manual differential, new tests in hematology, new parameters within the differential, test ordering, and labor issues. Natasha Savage, can you tell us what your laboratory's manual differential rate is and how much of that division is slides versus screens?
Natasha M. Savage, MD, medical director of hematology and hematopathology laboratories, Augusta University Health, and associate professor of pathology, Medical College of Georgia at Augusta University: We're at 28 percent in our core laboratory. As far as technology-assisted manual differential versus nonassisted, I wouldn't say we're at 100 percent assisted, but we're getting close to 100 percent because we use CellaVision in our core lab. This of course has reduced the tech time for a manual differential substantially—from approximately eight minutes to two minutes.

Ken Childs, tell us, generally, in the Americas at CellaVision, what is the range of images on the computer versus glass, in your experience?
Ken Childs, MBA, director, Americas, CellaVision: Laboratories, especially larger laboratories, typically do use CellaVision technology in order to digitize the slide and automate the entire hematology process to provide critical information more readily and quickly to the clinicians.

Knowing the diagnostic industry as I do, I'm somewhat surprised that CellaVision remains an independent company. Is that a coincidence or a desire of the Swedish owners?
Ken Childs (CellaVision): We are a small Swedish company and we have a unique market at this point. We are the leader and one of the only companies that does digital morphology for hematology. This is a small niche in our market, and there have been opportunities for other companies to come along and they have over the years, but CellaVision continues to be the favorite. It's distributed through most hematology partners so it gives the customer the opportunity to consider automated morphology when they purchase their hematology systems. That's the way we've operated for the past 15 years and the way we continue to do things today.

Slattery

Eeva Slattery, can you comment on some of the market factors you're observing? What are you seeing that's top of mind at Abbott in hematology?
Eeva Slattery, marketing director, global product and portfolio management for hematology, Abbott: We're hearing from our customers similar dynamics to those discussed in the roundtable two years ago, especially workforce challenges. This includes technologists who have the skill set but are getting close to retirement as well as fewer individuals choosing to enter the laboratory profession and completing their training. That's a big challenge for our

customers, particularly in the less densely populated areas. We're focusing on how we can meet that need in the workflow of our laboratories and how we can make it as easy as possible for labs with their current staffing level to provide an optimized workflow and get results out on time.

Susan Behnke, what's top of mind for you at Horiba Medical?
Susan Behnke, MT(ASCP), MBA, senior marketing manager, Horiba Medical: Horiba Medical is a bit different than the other hematology companies. We go through distribution for all of our sales, and our focus is on the physician lab, secondary reference labs, and then, for the hospital market, on the critical access and rural hospitals. Their challenges are a little different than those of the city and other high-volume hospitals. There's more near-patient testing. We work with a lot of individuals who may not have a four-year medical technology degree, so training is always top of mind to ensure the best specimen is run through the analyzer.

Ann Ludwig, two years ago, we talked about a barbell-type spread of testing, one side being near-patient testing in the clinics, whether independent or clinics that are part of large health care systems, and the other side being automated testing in core labs. How have we advanced in that line in the past two years? Would you say that dichotomy is becoming greater or lesser?
Ann Ludwig, MT(ASCP), assistant director of automation solutions, Sysmex America: We've experienced an even greater adoption of our broad portfolio of products, especially with the XN-L series. While we have great success in the reference lab and hospital market, it has taken off in the past two to three years in filling a gap in the smaller clinics, ERs, and satellite labs, where laboratory staff can enjoy the same reagents, technology, and software. Rotating their staff and training become a nonissue. Ease of use and flexibility and familiarity are driving that adoption.


Dr. Burnside

Rachel Burnside, I would imagine that your comments might lie very much in parallel with those of your colleague from Sysmex.
Rachel Burnside, PhD, MBA, senior manager, hematology product management, Beckman Coulter: They do, and I would mirror also what Eeva Slattery said about staffing challenges. With COVID, the focus has changed to more molecular-based testing, and technologists wear many hats. We've seen burnout among nurses and physicians, and I'm sure we're seeing it in the laboratories as well. Some who are close to retirement are retiring, and other staff are earlier in their careers and don't have the same skill set that the more senior staff have. So we as vendors want to make customers' lives easier by providing them with workflow improvements and improvements on the automated differential to support that.

Eric Hsi, can you comment on the labor issue you're facing as a laboratory director, and then generally as well?
Eric D. Hsi, MD, professor and chair, Department of Pathology, Wake Forest Baptist Health, and pathology enterprise service leader and academic chair, Atrium Health: Like everyone else, we are facing real pressure in terms of finding the right employees and talent because of the aging of the technologists. There's definitely an element of COVID burnout. Some technologists are deciding that as they're able to retire, now is not a bad time to do so. It's only making some of the problems worse. Also exacerbating the problem are the many medical technology schools that have closed over the years. We have a bigger exodus now and our pipeline is smaller.

So we, like other places, are making a more concerted effort to partner with training institutions in our region to bring those technologist students into the laboratory for their internship so we can get a crack at hiring them. And we're coming up with innovative ways to try to attract them into the program, including tuition forgiveness. And

even earlier—generating programs that let students in high schools know there's a career path in laboratories that they never knew existed. And then providing pipelines for phlebotomists—getting them in the pipeline and having them be able to progress along a career path. We're starting to be much more intentional about developing programs.

Automation can only go so far. We still need experienced technologists and technicians to make the decisions and perform the higher-level functions. So we need as a community to publicize that there's a viable career path for laboratorians.

Susan Behnke, with your particular market focus, are you also seeing these serious labor problems and the concern about having adequate staffing?
Susan Behnke (Horiba Medical): Absolutely. Everyone is wearing more than one hat and it's always been a challenge but it continues. And after the past 18 months of COVID, some people are getting out of health care. They're finding other career paths that better fit their family's needs.

The HIV and hepatitis epidemics cut back on willingness to work in laboratories. Eeva Slattery, are you seeing any echo of that now in the COVID era?
Eeva Slattery (Abbott): Yes and no. We do see some concerns, but what's also interesting is that we're seeing more visibility about the career outside of the laboratory population. The importance of the role of the laboratory technologist was less apparent before COVID. So there's a potential flipside that might be able to reignite the interest in this profession.

Natasha Savage, what are your thoughts about this labor problem?
Dr. Savage (Augusta University Health): I completely agree. We have been working on a significant number of openings for years, and it's only been exacerbated by COVID. For a time we were working a platooning system in the fear that one group would become sick and pass it to the other lab staff members, which exacerbated the short staffing.

Like others during the pandemic, we had to validate numerous new tests and bring in new instruments to allow for COVID testing, so the already short staff got spread even thinner. We've been looking at ways to recruit more medical technologists. We're thankful we have a medical technology program associated with our school, but it's small and doesn't fill all of our or statewide needs.

Another issue that's a concern for everyone is cybersecurity. Rachel Burnside, does that concern reach into the hematology labs and the directors you know?
Dr. Burnside (Beckman Coulter): It absolutely does. Every time you're going to contract with a customer, the sales team has to interface with IT. People are concerned not just about the security of their network but also the firewalls built into their systems, against ransomware or hacking, to maintain the security of PHI.

I have spoken to several people about laboratory budgets for next year, and it seems IT cybersecurity and labor are going to take an ever bigger share of whatever dollars we have to spend. Eric Hsi, would you agree with that?
Dr. Hsi (Wake Forest): Yes, I would. It's unfortunate we have to spend a lot of resources on this when, in my view, it's better spent on the testing and the technology. But it's the world we live in. I've talked to colleagues whose institutions have been ransomware victims. It's so disruptive, it harms patients, and it affects the whole health care system. And everybody is now taking it much more seriously and developing contingency plans.

Childs

Ken Childs, how is the cybersecurity issue playing into the immediate business for CellaVision?
Ken Childs (CellaVision): We've had to change our software in the past couple of years to make sure we meet all the requirements for secure networks and that all of that information is held securely and encrypted within our system. We do not typically connect outside this environment; we are married to the LIS or middleware system.

Eeva Slattery, when we talk about automated hematology, the role of rules and rules-based reporting and resulting always comes up. What changes, if any, have you seen in terms of implementing rules in the era of COVID and cybersecurity concerns?
Eeva Slattery (Abbott): We see a big focus on rules. We talked earlier about the need to reduce slide review rates, and having appropriate and robust rules will contribute to that, whether it's on the instrument itself or through a middleware or LIS solution. And, looking beyond just hematology results, also incorporating clinical chemistry and other available results to make sure those samples have been dispositioned appropriately. With COVID, we're seeing a need to evaluate whether those rules are appropriate. There are certain cell types, such as lymphocytes, that behave more interestingly under COVID and that may trigger a slide review that wouldn't have been triggered under prior circumstances.

Ann Ludwig, can you speak to the importance of rules and automated hematology and resulting and how that has been changed for the better or worse in light of recent events?
Ann Ludwig (Sysmex): What COVID has done for us is generate interesting conversations around people taking a look at what is important. And some people used it as an opportunity to look at whether they need to keep doing things the way they always have or whether now would be a good time to change. A refocus in thinking around "Do we need to prioritize our time?" So there have been a lot of conversations around slide reviews—am I giving the clinician information above and beyond what the instrument already told me? Am I just reiterating what the instrument already told me, and if so, should we stop doing those types of reviews? It's allowed people to take a step back and review holistically their top to bottom process.

Rachel Burnside, most of us have known that on a broad basis there's been excessive manual reviews. Would you agree?
Dr. Burnside (Beckman Coulter): Excessive is a relative term, but if you think about the nuisance reviews, yes. Our focus is on how we can reduce or eliminate those and then allow techs and pathologists to focus on reviews that are needed to make a diagnosis.

Natasha Savage, how do you go about optimizing that process in your laboratory?
Dr. Savage (Augusta University Health): There are a lot of things that need to be done for optimization, but one of the things we've really tried to streamline is clinicians ordering manual differentials. We provide education to let them know that's not necessary. We have educated our clinicians about the significance of bands through a grand rounds to help prevent manual differential orders. We're trying to implement ordering practices to ensure our clinicians are ordering what is best and appropriate. We have to ask ourselves, as was said earlier: Am I providing anything else to the clinician when we do a manual differential? Am I providing anything else to the clinician when I'm doing a pathologist-performed peripheral blood smear review? If not, it's about educating them when they're ordered why it wasn't needed and how it can be prevented in the future.


Dr. Savage

In order entry, do you make use of rules and all the other things the doctors say they dislike but the laboratory needs?
Dr. Savage (Augusta University Health): Yes, we have hard stops on differentials so a non-ICU/cancer patient can't

get a differential within 72 hours of a prior differential if the white cell count hasn't had a significant change. We are also implementing hard stops on who can order a peripheral blood smear review without calling the laboratory. There are a lot of hard stops in place—certain orders that are available only to certain specialties, certain orders that are available only every so many hours, pathologist review of send-out orders over a certain cost, et cetera.

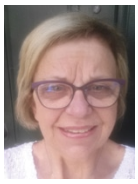
I see all of you nodding your heads. Does anyone wish to comment on what we've heard from Rachel and Natasha?

Dr. Hsi (Wake Forest): To be effective at that you need to partner with the clinicians, and it is heavily dependent on an active medical director because it's not appropriate to ask a technologist or a manager to drive that. You're really getting into trying to make medical decisions. Technologists are all about providing accurate results. "There's one meta there; I want to report that one meta." But what is that really telling you? So you have to bring in that judgment and then the buy-in from your clinical partners to drive those kinds of changes. It takes time.

Ken Childs (CellaVision): I agree that is an important part of any laboratory that the clinician be involved in those decisions because if they're not, you may have a haphazard approach to it, in my view from what I've seen. You can refine things when the pathologist or the hematologist gets involved, makes those decisions, and provides the education to staff. It makes a huge difference.

This raises an issue we discussed in our roundtable two years ago, and that is the challenge of clinical education for all the people who order tests—which we've talked about here, too—but also the challenge in people getting test results and making sure they know what to do with them and what they may mean clinically. Eeva Slattery, what is your experience there?

Eeva Slattery (Abbott): We're now offering so many more parameters with the CBC than were offered 15 years ago. And clinicians, those who are not hematologists, tend to go to the same familiar parameters. These new parameters, however, offer value and more clinical insight. Communicating effectively what that clinical value is has to be prioritized by the laboratory and hematopathologists as well. The number of new parameters is exciting, but we need to make sure we have the buy-in and support from clinicians in understanding the added value.



Behnke

In a related market, which is biomarkers and targeted therapies, I'm told that the gap between academic centers or tertiary care hospitals and the community practice is widening. Susan Behnke, do you have a comment or an observation on that as it relates to hematology?

Susan Behnke (Horiba Medical): I would agree with that to a certain extent. But even in the smaller, rural, and critical care hospitals, as well as in physician offices, the basic CBC provides a lot of information on diagnosis and monitoring of patients and providing treatment as quickly as possible, versus in the past when some of these sites were send-outs and it was a couple of days before they got their results and could get the patient back in to continue their treatment. Near-patient testing has helped in that regard, and especially with oncologists and infusion centers that have a good basic CBC before cancer treatments are administered.

Dr. Hsi

Eric Hsi, you do a lot with the molecular diagnosis of hematologic malignancy. How is that affecting the basic operation of the hematology laboratory in your experience?

Dr. Hsi (Wake Forest): There's always a connection between the hematology laboratory and the hematopathologists as new diagnoses are coming in. Hematopathologists are also heavily involved with the flow cytometry laboratory or molecular lab, so the ties between them and the laboratories are very close, and in those settings things get passed off across laboratories efficiently. Protocols and workflows are set up such that specimens can be shared rapidly and testing can be initiated as soon as there's an inkling that you might be doing something for which molecular testing is needed. Or there are defined pipelines to the reference lab of choice. So things have become much more routine than they were, say, five years ago about putting in advanced FISH testing or next-generation sequencing panels. Those workflows are more ingrained and further down into smaller places than they were just a couple years ago.

Natasha Savage, with the rise in the demand for further workups, do you find you're deeper into the treatment-planning conferences or even discussions with patients about their condition?

Dr. Savage (Augusta University Health): Yes, and the main issue is what Dr. Hsi said: We're doing more and more specialized molecular testing to allow for more individualized therapy and ultimately better outcomes. This requires specimen sharing. With that, there is also the need to educate the clinicians about what tubes need to be collected and how many, what tests should be ordered, and constant communication about what test I'm canceling and why, as well as what test I'm adding and why.

Ken Childs, would you like to comment on this issue from your perspective?

Ken Childs (CellaVision): From our perspective, it's about being able to automate the process and provide information instantaneously while being able to share with clinicians and other partners within the hospital quickly without having to transfer the glass slide. This avoids the process of going to the microscope and trying to interpret what can be seen and then having to transcribe it. Instead, the information is available immediately.

It seems a new targeted therapy becomes available often. Ann Ludwig, it must be hard to keep up not only for the physicians but also for the vendors. Is that true?

Ann Ludwig (Sysmex): Things stayed the same for so long that it got a little stagnant. Now we have all this new technology and a lot to keep up with, but it's exciting to watch the advancement and to figure out how we can get what's newly available to every deserving patient in all communities. And how we can help automate and make what's new easier to use and more widespread.

Eric Hsi, have you seen greater enthusiasm among your colleagues in training for the field of hematopathology in recent years, given all the wonderful developments in testing and treatment?

Dr. Hsi (Wake Forest): Yes, there's a steady stream of eager trainees who are interested in hematopathology. They like the speed with which things are developing. They meld the morphology with advanced technology. I sometimes call it anatomic pathology with great toys.

And they really like the interaction with the clinicians. It happens daily because of the acuity of some of the cases. And I try to interest them in investigation and get them to do some clinical or translational research while they're here.

Natasha Savage, is that what you're seeing also?

Dr. Savage (Augusta University Health): I agree with what Dr. Hsi said. We've had an increase in the number of our residents who want to do hematopathology. My residency program is smaller than Dr. Hsi's; we have about three house staff members per year. But one of three typically goes into hematopathology. Currently, I have a large second-year class of five, and three of the five want to go into hemepath. They like the interactions with the clinicians. They like integrating all the testing modalities/ancillary testing, and they like that they'll get molecular training and be able to incorporate that into their day-to-day practices.

In hematopathology, we also get continuity of care. If you diagnose someone with leukemia, you get to see their marrow a month later, a year later. They enjoy following their patients longitudinally.

Rachel Burnside, would you like to make a final comment?

Dr. Burnside (Beckman Coulter): One of the things we all touched on throughout this discussion is the increase in data and information that is bombarding clinicians, and the need for interpretive help with that. The body of scientific knowledge is not getting smaller; it's getting larger. And we're seeing Google and Amazon get into health care. So I think machine learning, AI, clinical decision support is going to be the next big thing in diagnostics and it's something to which we all need to pay attention.