

S6E1 | Rethinking coagulation workflow from sample to report

*with **Dr. André Valcour**, Vice President and Laboratory Director at Labcorp.*

*Interviewed by **Nichole Howard**, North America Chief Executive Officer at Stago*

In this Meet the Expert conversation recorded at ISTH 2026, Dr. André Valcour explores how smarter workflows, automation, and expert rules are reshaping coagulation laboratories, helping teams work more efficiently while delivering consistent, actionable information for patient care.

Dr. Valcour, you've built one of the most sophisticated coagulation workflows in the United States, and today we're going to explore what it really means to be a high-performance lab, from sample all the way through to final report. If you had to think about your main focus when you were looking at new vendors and redesigning your lab, what problem were you trying to solve, and what were the most important priorities for you?

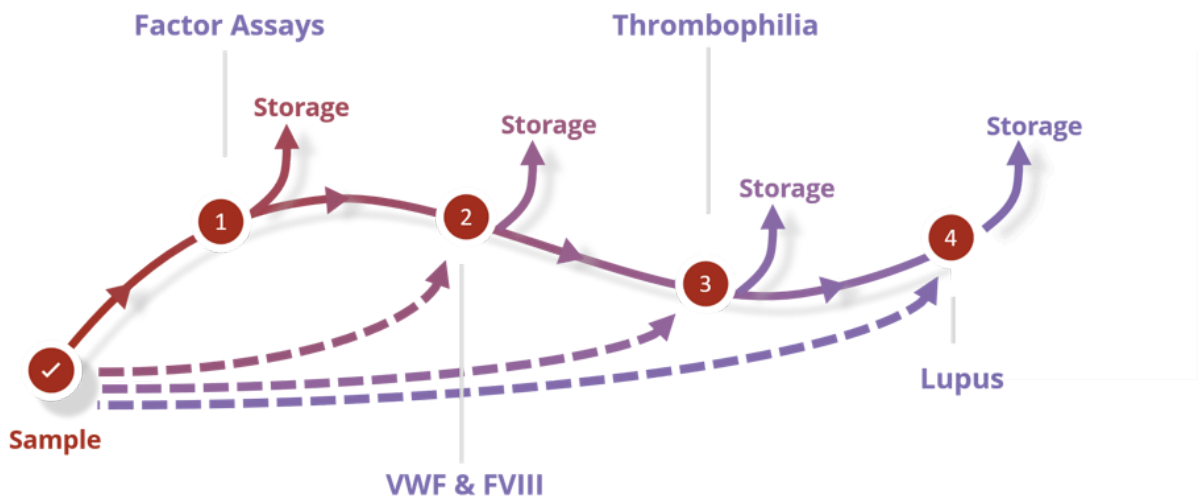
One of the biggest challenges we have in the laboratory, and I think this is international, is finding highly trained technologists and people who can learn the complexities and nuances of hemostasis testing. I remember a previous medical director for LabCorp, Dr. Dorothy Adcock, one of the real standouts in the industry, saying in CAP Today many years ago that it takes three years to train a tech to perform hemostasis testing. Unfortunately, we don't have that kind of timeframe, and we don't have those kinds of people. We've had to shift to a completely different approach. We're trying to leverage very powerful middleware to manage all aspects

of the process, from sample triaging through autoverification, with expert rules on the instruments that ultimately allow samples that meet all our criteria to be released without manual review.

Then we have to add results that provide true value to the client, which means providing interpretation for those results. We can't provide pathology consults every time, so we create rules-based clinical consulting engines that attach a full comment, an explanation, and a clear, readable interpretation of the results. All of that leverages what is now called AI, although when I started doing it in 2001, God knows what they called me back then. But in any case, we've used it to make it possible to provide a high level of service efficiently and promptly.

One of the concepts you've become well known for is the idea of organizing coagulation workflows into waves. I know that's something you developed very intentionally. For those who may not be familiar with it, can you walk us through what that means in practice and how it has changed your day-to-day operations?

Well, conceptually, it's become a bit of a moot point, but we still leverage it today. One of the characteristics of hemostasis testing is that you can't put a sample on a single machine and perform all your special coagulation testing on that sample. There isn't enough reagent space for all the reagents, reflex testing, and different things you need to do. We knew from the beginning that you had to move a sample from machine to machine. When I started developing this 15 years ago, there wasn't a really viable automated line that could do that. We had to use what we referred to as a "sneaker line," meaning people physically moving samples between machines. To make that efficient and work properly, we designed what I call the "waves." It works a little bit like moving samples along a line. The first thing you do is use a triaging program. You put all the samples on dry ice on a table, where they are kept frozen. You scan them, and the ordered tests are downloaded from the mainframe, from the LIS. Our software then says, "OK, do I have a factor? Do I have to run it on the first wave?" Then a little voice says "2," which means you put it in rack 2. If you don't have any factors and you're going to have von Willebrand testing, the little voice says "3," and you put it in rack 3. We also have some nuances built into it. If it's factors plus something else, we call it "2 plus." So we have rows of racks, probably 10 racks, where we segregate the samples into waves.



Wave-based organization of specialized coagulation testing. Samples are triaged according to the tests ordered and assigned to successive testing waves: Wave 1, coagulation factors; Wave 2, factor VIII and von Willebrand factor testing; Wave 3, thrombophilia testing; and Wave 4, lupus anticoagulant testing. This approach supports the organized movement of samples through the laboratory workflow according to their testing requirements, while helping minimize unnecessary handling and freeze–thaw cycles.

The idea is that you start at a low wave and move the sample up through the waves. If factors are all you have, it stops there. If you have factors that require additional testing, you move the sample to the next machine. You move it as if it were on an automated line, but you do it using a sneaker line. One of the other advantages is that you don't run every test every day. For some tests, it isn't cost-effective to run them every day. You can pull those samples into a special wave and run them when you plan to perform that testing, whether that's twice a week or three times a week.

Another benefit is that you eliminate unnecessary freeze-thaw cycles. You make sure that everything is done within a single freeze-thaw cycle.

The goal of our sneaker line and our waves was to take a sample, triage it in the morning, maybe at 8:00, and have everything reported by 5:00. We're still doing that because we haven't fully implemented the Stago line in my lab. We have nine STA R Max systems, and we process 2,000 samples a day and 8,000 tests a day, all specialty testing, and they're all out by 5:00 in the afternoon.

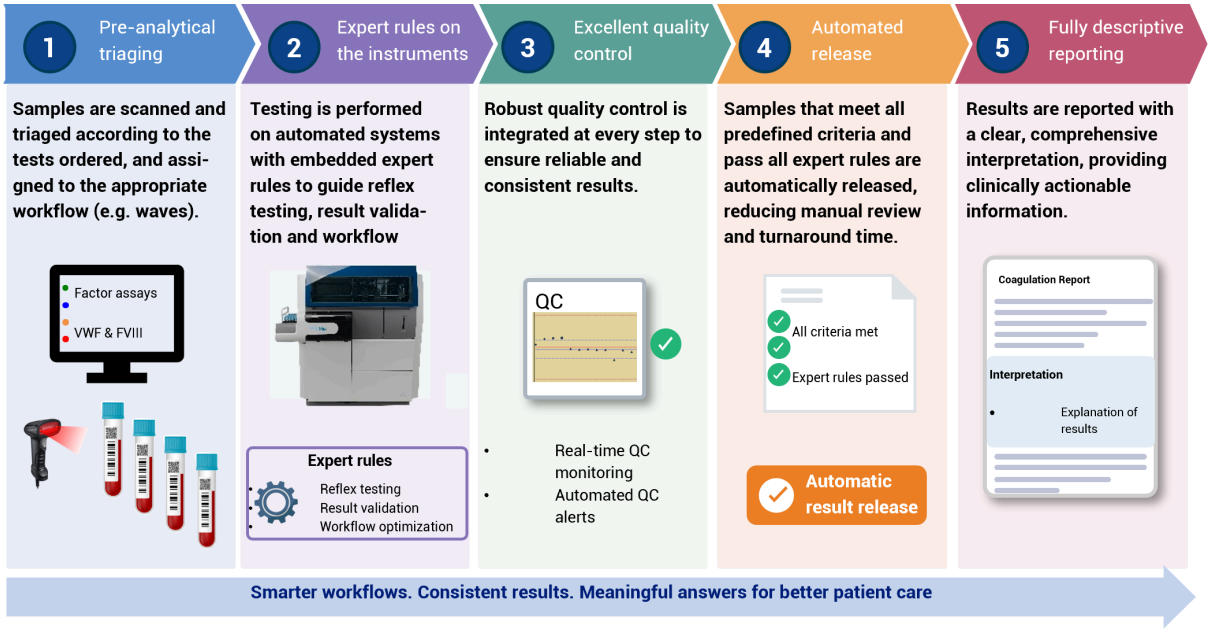
We have a group of people who triage and rack these samples with the help of that little feminine voice. Then we have techs who know, "I move it to machine 1, then machine 2, machine 3, and machine 4." We can put the reagents on different instruments to make the process more efficient. It's essentially the predecessor of a fully automated line.

The thing is, we're probably not going to move away from it completely because we still need to pull out samples that require specialty testing. Also, with the Stago system we use, you put five samples in a rack. It makes a lot of sense to load a rack with five samples that all require factor testing and then move them to von Willebrand testing if they have a "2 plus". It will still limit and reduce the number of times those racks have to travel through the automated line.

I'm waiting for the day when all my good ideas become antiquated and forgotten! But we still need the waves, and they still add value. I've gone to international laboratories and seen that one of the challenges is that techs have to manually go through every sample, look at what has been ordered, and identify the tests that aren't being run that day. We don't have to do that. It's all part of our process. Also, the way we do the triaging doesn't require a tech. A very highly trained lab aide can do that work because every lab aide can listen to a little feminine voice and put a sample in rack 2.

In your opinion, are there inefficiencies that most labs simply don't see or tend to underestimate?

I don't know if that's necessarily the case. I think they don't always envision the possibilities. When I started in the field 25 years ago, I was asked what my dream lab would look like. To me, and I've become notorious for saying this and quoting myself on it all the time, it was: "Load sample, go home." That was the perfect lab for me. I wanted to basically eliminate all the manual steps that are sources of error and sources of stress in a 24/7 lab, where tired techs can make mistakes, and eliminate all the things that Dr. Dorothy Adcock said took three years to learn. I wanted to train my middleware to do it. The vision and the way to do that is to think about all aspects of testing: pre-analytical triaging, expert rules on the instruments, followed by the ability to have excellent quality control so that you know samples won't be released when there is poor quality control. Ultimately, you want the automated release of samples that meet all your criteria and pass all your expert rules. And finally, you want the ability to report them with a fully descriptive explanation of what the results mean.



The workflow integrates (1) pre-analytical triaging of samples based on ordered tests, (2) expert rules on the instruments to guide testing and validation, (3) robust quality control to ensure reliable results, (4) automated release of samples that meet all predefined criteria and pass expert rules, and (5) fully descriptive reporting with a clear interpretation of the results. This integrated approach enables an efficient, high-quality workflow from sample to report and delivers consistent, actionable information for patient care.

Because our business is not just laboratory testing. The hardest part is moving the data, moving the samples, and providing information. I can provide results, but if I don't provide usable information that drives decision-making by doctors, then those results have limited value. But the lab part, the testing, the machines, everybody has machines. Everybody does lab tests. Everybody has reagents. Delivering data, delivering information, and delivering the ability to change patients' lives, that's the hard part.

Since making changes to your platform and workflow, where have you seen the most meaningful impact?

The fact that I can go to bed at night knowing that mistakes haven't been made. One of the things that my predecessors said when we went live with this was, "But have you thought about this really rare occurrence that I saw one time three years ago, which you might miss with your automated software and your autoverification?" And I said, "No, I haven't thought of it. Thank you for telling me. I'll build a rule." And that's what we do. So I can go to bed at night knowing that somebody who was really tired, or somebody who had something else on their mind, didn't release a result that could have harmed a patient or delayed a diagnosis. I know that everything that goes out has met the standard of what I would expect a patient to be told. I also know that

clinicians who aren't experts in hemostasis and don't really understand what these tests mean are getting actionable information because I'm providing not only the analytical aspects, but also the clinical ramifications. I can provide that information as a comment. So, for me personally, the biggest impact is that I can go to bed at night and not worry about it. That's great.

As you look ahead, what does the next-generation coagulation lab look like for you? Well, I think we're getting there. We're not yet at the point where I can "load the sample and go home." There are still parts that need to be fixed. I think one of the challenges right now, particularly in hemostasis, is reagent loading. One of the challenges in hemostasis is that many reagents are quite labile. You have to use them relatively quickly after they're prepared. I think Stago has some more stable reagents, but just by the nature of the testing, some of these reagents are going to expire, so you have to manage that. I'd like to see that made a little easier for our people. It would be nice to have a better range of reagent volumes so that a small site could use reagents very efficiently. In a hospital setting, for example, they may need some of these tests emergently and need those results quickly. But when you have to throw away 90% of your reagent because you only run the test two or three times a week, that's a real challenge. And I think the industry has to find a way to solve that. Considering where we are right now, I think we've made huge progress. Like I said, in about a month, the sneaker waves are going away and we're going to have full-line automation, which is a great thing. I'd like to see a few other things done, but I can envision what the final lab will look like. I'm not sure I'll be around to see it, but I know what it should look like.

For lab leaders listening today, what's one piece of advice you would give them so they can start moving toward a high-performance model?

If I've had success, and not just in this space, because I've done things in allergy and endocrinology as well, it's because you have to partner with your collaborators. Nothing gets done without partnership. Two of the key entities in this room would be the laboratory directors and managers, but also the manufacturer. If you don't have a manufacturer partner who can embrace your vision, help you achieve what you want, and be agile, it's very difficult to get there. I spoke to some folks from Stago yesterday, and I was impressed with their agility. Things I asked for six months ago that I would have thought would take years are being delivered now. You have to find an agile and capable partner who can understand your vision and is willing to work with you to get there, ultimately not just to improve your workflow, but to improve the whole industry and patient care in general. Anything you can do to make the process more efficient, more consistent, and more cost-effective will help hospitals and large managed hospital groups.

But don't forget the other partners. There are two other very important partners. One is your lab techs. I do a lot of things. One of the things I don't do is run coagulation analyzers. I don't actually make the reagents. You have to bring the techs into the room. You have to give them a seat at the table. When they're at the table, they see things you don't see. You have to build an environment and a culture of continuous improvement. And you have to deliver. If you ask people, "What would you like to see? How would you like to see it fixed? What are your pinch points? What are your challenges? What are the potential sources of error you'd like to eliminate?" and then you don't fix them, you're just spitting in the wind. So you have to bring your partners in. You have to get them to embrace your vision. You have to get them to think outside the box. I don't know that everybody always thinks outside the box.

And the fourth partner, which I've talked about in other forums before, is your IT team. I've only gotten to know the Stago IT team recently. They are agile, very competent, and very capable. And I'll tell you, their documentation is best-in-class. Most of the things I wanted were already there. Everything that seemed logical and made sense, and I like to think I'm logical, was already in their software. It was very easy for me to say, "Please, can I have this nuanced enhancement, this little change?" With our patient population, we have a particular situation that we need to monitor. There's a case in point involving an assay not available from Stago that we found can sometimes have an issue with heterophile antibodies. In order to catch that, we need certain rules that wouldn't necessarily have been built otherwise. We asked for a rule, and it was built. Not only was it built, but it also has the ability to tell the tech what to do when that rule triggers. Because just because the alarm goes off doesn't mean they know what they're supposed to do. You can have comments saying, "If you see this, then do this." One of the things that Stago has delivered for us addresses another challenge in our workflow. We sometimes have to pull samples off the line to perform a neutralization, DOAC-Stop, or an incubated mixing study. On a fully automated line, being able to find those samples among 2,000 samples a day is critical. By the way, I run 2,000 specialty samples a day in one lab. That's 8,000 individual tests a day, averaging about four tests per specialty sample. Trying to find those samples would be impossible if you didn't have tools built into the middleware, alarms, even bright lights with little bells that show up on the machine, and then a map showing where the sample is. Fortunately, that's one of the capabilities Stago showed me yesterday. They have it, and they're going to be implementing it. So you have to have a partnership that starts at the bench, thinking about what clinicians and laboratory directors need, what the guidelines call for, and what constitutes good science. You have to partner with your vendor because you can't do anything unless they provide the right assays on the right instruments with the right software.

And ultimately, you have to have good IT. When I talk to people who have had challenges implementing full-line automation and really good, efficient workflows,

one of the biggest issues is getting buy-in from their local IT teams. It's challenging because IT teams have so many things on their agenda, and you have to make the case that your project deserves priority. Often, especially in coagulation, these are not the highest-volume tests in the lab. Getting your IT team engaged enough to build a really elegant interface, one that does all the things I'm asking it to do and supports clinical decision-making, can be difficult. My team develops the clinical decision software I use, but it's built by the internal team at LabCorp. Getting IT resources is always very difficult. And the last thing is that you have to remember we're living in an insecure world, with people looking to harm organizations and patients. You have to figure out a way to do all this in a very secure manner, with systems that are locked down and not accessible to bad actors. That adds another level of complexity to a fully automated line and to the kind of workflow I'm trying to develop. So, yes, there isn't just one thing. It's a lot of things.

Once it's running, I can get some sleep. But until it's running perfectly, I don't get a lot of sleep. There are a lot of things you can do, and maybe not everybody thinks about them the way I do. But I think if they knew they could do what my team does, they'd want to do it too.

Thank you, Dr. Valcour. That was incredibly insightful. I think what really stands out is that high performance isn't just about speed. It's about designing workflows that are smarter, more integrated, and ultimately more sustainable in delivering patient care.

About Dr. André Valcour



Dr. Valcour is Vice President and Laboratory Director of the Center for Esoteric Testing at LabCorp and Discipline Director of Allergy, Coagulation, and Endocrinology. He leads work across esoteric immunoassay, allergy, and special coagulation testing, with responsibility for method development and clinical correlation in these specialties.