Lab Pinnacle Series Beyond LIS and LIMS: The Value of Coordinated Orders and Results Management for Outreach & Ambulatory Laboratory Testing

ROUNDTABLE CONTRIBUTORS

Industry experts joined together to discuss the value of laboratory order and results management solutions in the United States, United Kingdom and European Union. Contributors included:

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Extending lab reach beyond hospital walls works best with the integration of specialized surrounding solutions. In the following report, thought leaders from Sunquest and CliniSys Group explore the benefits of purpose-built lab technology that connects orders and results across expansive lab networks, health systems, regions and even nations.

Moderator: COVID-19 cast a spotlight on the need for scalable lab technology that supports rapid adoption of new tests and instruments, as well as rapid order sharing and routing with other labs. In Europe, how important is agile, scalable technology in the response to COVID-19 or any event that causes spikes in lab testing?

Pieter De Smet: Scalability is essential for laboratories today, as the COVID-19 crisis made even more clear. At the start of the pandemic, there was not enough capacity to manage the surge in tests and orders. Labs in Belgium, Germany and the Netherlands, for example, needed to move very quickly from pre-pandemic low daily volumes to multiple thousands per day.[1] In Austria, one Viennese lab jumped in record time to around 150,000 tests per day – and as Thierry will attest – a national screening initiative in France is doing much more than that. The governments of those countries needed help scaling up order entry, result distribution, and management of lab workflows, which meant they needed not only the right technology but also the right expertise.

Thierry Ginod: Yes, in France, the national COVID screening and monitoring initiative implemented by the French Ministry of Health and Solidarity went live in May 2020 with our CyberLab electronic order entry and result consultation system. In those early stages, the French system handled around 50,000 test results per day, and by June 2021 had grown to an average of 3 million tests daily. The platform took just six weeks to implement, which is only possible with highly scalable technology and extensive lab workflow expertise. Today, all French laboratories are integrated with our platform, sharing and accessing test results across the country. It is a fascinating case study for those interested in learning more.[2]

Marit Vervaet: Yes, and there were only a few suppliers in all of Europe who could deliver this because, to Pieter and Thierry's point, technology is not the only critical success factor. Expertise is paramount as well.

Pieter De Smet: That's right. For a lab doing 500 tests per day with a certain

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infrastructure beneath, scaling up to a multiple of these volumes is a huge challenge. You need a lab technology partner who can react quickly at every phase from planning to implementation and configuration. It requires multiple levels of competence because you must work with application specialists, IT specialists and consultants to properly size the architecture and make it highly available and reliable.

Moderator: What kind of impact has scalability had on U.S. laboratories?

Jodee Wagner: The need for scalability became very pronounced in the U.S. response to COVID. Many labs needed to bring up new tests, new instruments and even new lab sites quickly, and they needed new integrations to route test orders to other laboratories outside their normal diagnostic testing networks. So, it is true that scalable technology was a clear necessity with COVID, but it is also true that the need has been there for a long time – and for years, true best-of-breed laboratory solutions have been laying the framework for the kind of agility COVID required. Labs investing in best-of-breed technology, including LIS or a laboratory information management system (LIMS) for molecular testing, were best equipped to get COVID testing off the ground almost immediately, which is demonstrated in our recent case study on multi-lab networking with a group of hospitals in Maryland.[3] Regardless of where a lab is on the technology evolution spectrum, scalable solutions are essential for growing and improving lab operations.

Moderator: Why not just use LIS or LIMS for COVID and other ambulatory test orders and results management? Why the need for surrounding solutions such as Sunquest Atlas™ in the U.S., ICE (Integrated Clinical Environment) in the U.K. and CyberLab in Europe?

Amanda Caudle: In the U.S., there were a few reasons. First, many orders came from employers and schools with no lab experience or lab connectivity. Getting them to go directly into an LIS or LIMS would have been a huge request and undertaking and negatively impact the lab workflow for the quick turnaround that was paramount for COVID testing. Second, having that higher level of agility in terms of interoperability enabled many labs to bring their LIMS to the unique order collection settings we have seen with COVID, such as drive-through sites and pop-up clinics. And finally, a lot of in-house LIS or LIMS in the U.S. market are not designed to readily accommodate the federally and locally mandated ask-at-order-entry questions and other reporting requirements that came with COVID testing. For all these reasons, surrounding solutions for multi-lab networking, EMR connectivity, physician portals and patient service center portals provided more flexible and accessible options.

Darren Solomon: In the U.K., we are seeing a real drive away from siloed systems. Pathology is our biggest customer base for ICE, but there is a lot of diagnostic ordering in other areas like radiology, cardiology, endoscopy and others. Given the drive in the U.K. toward standardization of ordering and the reduction of individual systems used, if end-users are steered towards using the LIS for pathology ordering, then they are effectively being pushed into that silo, which we do not want to do.

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Pieter De Smet: To Amanda's point, with the national COVID initiatives in the EU, we were confronted with a completely new audience, and we had to train people very quickly who have never worked with these kinds of applications. There, ergonomics and simplicity were also key. For example, we trained the Belgian Army because they were sampling people and registering COVID testing in settings like schools and businesses. You want to keep it as simple as possible. Surrounding ambulatory order entry systems make those functionalities more accessible to non-laboratory personnel. Plus, in the EU, configuring new questions into the LIS can require a new accreditation cycle, which means having to re-validate the existing processes. Keeping it separate from the LIS offers value in that sense as well.

Moderator: What are some other common lab-related challenges that more specialized orders and results management solutions help overcome?

Amanda Caudle: Any time you receive and share orders outside that central EHR, it becomes very difficult to manage without some sort of external system. This is true across the gamut, from small independent laboratories just getting started with outreach to very large health systems that share testing regionally or with national lab partners. Integration is just as important for results reporting, so even when a patient's tests are performed at different locations, the right technology can integrate all results for that patient into a single report for the ordering physician in the format(s) he or she prefers. All of that is important – getting that full picture back to physicians in a single view instead of flooding them with numerous reports.

Jodee Wagner: I agree. Having one source to receive, route and manage orders and results across all those different EMRs and vendors is key for all types of U.S. lab settings. It also aligns with the goal of many U.S. hospitals to expand their community footprints by keeping as much of the continuum of care within their systems as possible, which can ultimately drive a range of benefits from higher revenues and lower costs to improved patient experiences.

Marit Vervaet: To provide a scenario specific to COVID, one of the things we saw commonly in Europe was that we were no longer doing COVID testing with one lab, but with regions and even a country like France, as Thierry explained. In France, we connected hundreds of LIS' and thousands of labs to one platform. You can only do that with an external system.

Moderator: In the U.S., many hospitals use their enterprise EHRs to capture test orders, but often these systems do not consider order quality or content, nor do they accept orders from outside the network. Let's dive into those limitations and what kind of impact they have.

Amanda Caudle: When you get orders from outside your network – which is necessary for business growth and serving your community more widely – you need a way to ensure each order comes with all the information necessary to process it and deliver results in ways that are not limited to your own health system. Enterprise health records are not purpose-built for the laboratory, which means the data and information they collect may not be specific enough to support excellent patient

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care and provide ordering physicians the answers they need. Systems that are specially built for labs collect richer sets of data that can be used to help improve processes, care, reporting or all the above.

Pieter De Smet: Enterprise systems handle some of everything, but best-of-breed laboratory technology does lab only, and therefore, does it better. We know how all laboratories work, including very specific disciplines like microbiology and genetics, and we make sure we have all the data in place for the lab to run a top-notch service. In the EU, our enterprise system interfaces are run based on international standards (IHE), and we make sure the necessary data are there but nothing more. The same is true when we work with our own systems – the priority is always bringing the right information to the labs to make sure they run their businesses well.

Darren Solomon: In terms of quality, decision support through customized, built-in rules engines can prevent unnecessary ordering – the idea being that any clinician using a platform like ICE in the U.K. can be expertly steered to the right order at the right time. Then, in terms of accepting orders from outside the network, you must go beyond the enterprise system if you want to have a single place for all care settings to order and see results for all diagnostic tests performed. EPRs are very focused on the verticals of the hospital setting, but it is so important to think horizontally across the patient pathway, to enable any clinicians in any setting – hospitals, physician offices, mental health clinics and so forth – to see orders and results from the other facilities. As a result, we can build more holistic diagnostic views of patients that can be served back to all patient care environments.

Moderator: Excellent point. Let's dive further into why it is so important to empower physicians and other healthcare providers to cross data barriers, and how deep that data-sharing should go.

Glyn Hughes: I think any time a clinician is caring for a patient, having the fullest view possible of what's happened to that patient, what's been ordered for that patient and what's been reported for that patient can only lead to better clinical decisions. Being able to see what results people have looked at and determined to require no further clinical action can drive better, more-informed patient care.

Thierry Ginod: Agreed, and that was the driving force behind the work we completed in France last fall, in which we extended CyberLab system access to independent doctors as well as nurses and pharmacists. While that level of connectivity has not taken hold all over the EU yet, there is a growing understanding that patient care is positively impacted when data-sharing extends well beyond hospital borders.

Amanda Caudle: Patients in the U.S. tend to change providers frequently, and because the U.S. market is more fragmented, there isn't as much data sharing here as we see elsewhere. There are some standards and options around sharing records between providers or across health information exchanges, but we are still in the early stages and haven't coalesced around a true standard yet. U.S. labs and health systems should be working now to ensure their technology is flexible enough to

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support whatever changes and standards are on the horizon for broader diagnostic data sharing.

Glyn Hughes: In the U.K., it is much easier to get data sharing agreements between organizations in the National Health Service (NHS). We are currently working on the diagnostic hub concept, and the clinicians' expectation is that they should be able to access all tests and results for their patients, irrespective of where that care has taken place. But LIS systems do not always deliver that. Clinicians often have to phone up different organizations to ask for results, and if those results are not easily sharable, they end up retesting. So, having a best-of-breed system functioning as a diagnostic hub is the current goal. Different organizations can send all results to one place, and clinicians, wherever they are, can see all results for their patients.

Marit Vervaet: In Europe, we must apply the European law, which says that patients can make that choice. If you (the patient) allow it, your results are shared among all your medical providers; if you do not, your results are visible only to the one or two providers who ordered your tests.

Pieter De Smet: Yes, and Marit's point further illustrates the need for a general results server solution that can step away from political layers and language barriers to offer something functional, independent of whatever type of regulation you need to respect

Moderator: What about the business aspects of the lab – how does electronic order capture and results delivery support revenue for ambulatory outreach and inreach programs, including draw centers, clinics, long-term care, etc.?

Glyn Hughes: The ability to influence what a clinician orders is important because it helps control overutilization and underutilization without slowing patient care or delaying diagnosis. Here in the U.K., integrating with nationally agreed standards for clinical decision support is also quite useful in driving clinicians to the correct test.

Jodee Wagner: Coming from an ambulatory or outreach standpoint in the U.S., electronic medical records are not always equipped to verify medical necessity – but if a lab performs a test that was not deemed medically necessary, the lab will not be reimbursed for it, which means lost revenue. Having a middleware solution helps labs prevent those costly write-offs because we can run the national and local network rules against the tests that are being ordered.

Marit Vervaet: Protecting the chain of custody and specimen integrity is very important for lab operations as well. Technology that links with phlebotomy – with barcoding and electronic tracking right from the point of collection to avoid mixing tubes and patients – further supports laboratory business.

Glyn Hughes: That is very true. Having instrument-ready barcode labels when specimens come in the door drives massive efficiency in the laboratory. Ensuring positive patient identification throughout the collection process saves time and money by avoiding errors and the need to collect new samples.

Moderator: What about phlebotomist draw lists? How can lab technology support

better phlebotomy, especially in patient service centers, external draw centers and nursing home/elder care environments?

Jodee Wagner: In many U.S. nursing homes and similar settings, there is no EHR in place, so patient draws are still paper-based processes. But lab technology is changing that. The ability to put those standing orders in and print off easily sortable draw lists makes phlebotomists more efficient and proactive. It also makes it easier for the lab to receive the specimens, streamlining backend workflow as well.

Marit Vervaet: For accreditation, EU laboratories need to know when every specimen was drawn and by whom, as well as the temperature of the tube at all times. Doing all that processing on paper is almost impossible, so most of the labs we serve have moved to electronic phlebotomy or are in the process of moving.

Glyn Hughes: It's not quite to the same degree in the U.K. yet, but we are moving in the same direction because it does drive efficiency from a phlebotomy perspective. In fact, that was the initial driver for our portal product – helping care homes get orders for all their residents and staff to the lab more quickly and efficiently.

Moderator: Final question – if you were given only one word or sentence to describe the most important benefit of having purpose-built technology for lab orders and results, what would it be?

Pieter De Smet: Flexibility and accessibility. Across so much of what we've discussed – scaling up, sharing orders and results, covering different disciplines, and clinical decision support – having agile, scalable, customizable lab technology in place is key.

Jodee Wagner: For hospitals and health systems, it's that ability to offer the full continuum of care to all patients in their communities, not just patients of their owned physician offices.

Amanda Caudle: I'll say standardization, which helps drive higher quality. The more you have data coming in standardized for reporting purposes, the more information you have to drive standardization in your processes, ultimately for better patient care and greater diagnostic efficiency.

Marit Vervaet: Digitization. Just look at how critical it was to national monitoring and tracking of COVID. That would not have been possible if it were not managed digitally.

About CliniSys Group and Sunquest Information Systems

CliniSys Group and Sunquest Information Systems together provide leading diagnostic solutions to laboratories worldwide. Our combined cross-discipline expertise, spanning more than 40 years, provides our customers with solutions to support laboratory workflow across clinical, histology, molecular, genetics, including order management, reporting and results delivery; as well as solutions to support public health disease surveillance and outbreak management. We are dedicated to our customers and their strategic initiatives, with focus on quality to improve resource efficiency, cost savings, patient safety and vendor-agnostic open standard interoperability.

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[1] Case Study: MIPS makes an important contribution to the fight against corona in Belgium, the Netherlands, France and Germany https://www.clinisysgroup.com/be/en/news/mips-makes-an-important-contribution-to-the-fight-against-corona-in-belgium-the-netherlands-france-and-germany-2/
[3] Case Study: The IT heart of SI-DEP – France's national Covid-19 screening platform. https://www.clinisysgroup.com/in/en/case-studies/sidep-project-en/
[3] Case Study: Enabling Multi-Lab Networking Across a Large, Maryland-Based Lab Network for Dramatic Cost Savings https://www.sunquestinfo.com/docs/case-study-exec-summary-maryland-lab-network.pdf

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