Newsbytes

How LigoLab simplified the SARS-CoV-2 testing process

November 2020—As LigoLab was designing a direct-to-consumer portal for laboratory testing early this year, company CEO Suren Avunjian turned his focus to when in 2021 he would release it, not knowing what was around the corner. But as the number of COVID-19 cases grew to pandemic proportions, Avunjian realized he could and should redesign the portal to streamline SARS-CoV-2 testing.

With its pedal to the metal, LigoLab developed the Web-based patient platform TestDirectly to support laboratory test ordering and digital workflow for SARS-CoV-2 testing, Avunjian says. More specifically, the product captures requisition information through a barcoding system that simplifies specimen intake by automatically transferring data from the platform into the laboratory information system. TestDirectly can integrate with any LIS but "works very well with our system out of the box," Avunjian says.

As laboratories struggled to ramp up testing during the early weeks of the outbreak, paper requisitions became the bane of many a lab, Avunjian explains. Because much of the testing was for new patients numbering into the thousands, laboratories could not handle the onslaught of requisitions, nor could they provide results in a timely manner. "So the idea was, let's close the loop for labs, patients, testing facilities, and government agencies by having a streamlined system where the patient is doing the registration piece" and the results are automatically communicated back to the patient through the portal, he says.

Since its release in April, TestDirectly has processed more than two million tests and has been implemented by laboratories in eight states, according to Avunjian. State and county departments of health have used the platform to provide baseline testing for long-term care facility and correctional center populations. More recently, sales are growing among companies that operate cash-payment drive-through collection sites and those that provide on-site workplace testing for the entertainment industry.

Avunjian

TestDirectly's workflow is simple, Avunjian says. A patient locates a testing site via a search in the platform's zip code directory and schedules an appointment. The system then generates and retains an electronic requisition and sends the patient an email containing a quick response code that encodes the order information. Test administrators at the collection site scan the QR code from that person's smartphone.

The collection site module can be used anywhere, from correctional facilities to community testing sites, Avunjian says. For example, if a patient checks in at lane four of a drive-through location, the system can print the patient's specimen label at lane four. The platform is integrated with Zebra printers for label printing, but collections sites can use prelabeled transport vials, he adds.

After the specimen is collected, test administrators scan the specimen label barcode and the patient's QR code into the platform's frontend interface to associate the transport vial with the corresponding patient's electronic requisition. At a collection site's close of business, staff generate a specimen manifest that TestDirectly sends electronically, with all patient orders for the day, to the associated laboratory's LIS. Because each transport vial is already associated with a requisition, Avunjian says, the specimens can be processed immediately upon arrival. Once processed, the analyzer releases results to the LIS, which in turn forwards PDF reports to TestDirectly. The

platform then sends texts or emails directing patients to log in for test results.

The system has worked well for Northwest Laboratory, in Bellingham, Wash., according to chief operating officer Jennifer Bull. TestDirectly, which Northwest implemented with its LigoLab LIS in May, has reduced the laboratory's turnaround time for SARS-CoV-2 testing by about half, says Bull, who, along with Avunjian, conducted a presentation on TestDirectly at the 2020 Executive War College.

Dr. Rossi

Halfway across the country, in Pekin, Ill., Reditus Laboratories CEO Aaron Rossi, MD, is also touting the benefits of TestDirectly. "The biggest bottleneck with getting specimens in the lab is the intake and accessioning portion," says Dr. Rossi. In July, Reditus implemented TestDirectly via its LigoLab LIS at a drive-through testing site run by the DuPage County Health Department, in Wheaton, Ill. In September, it added a drive-through site in Bloomington, Ill. In addition to expanding testing availability, TestDirectly has decreased sharply the number of incoming calls about test results, Dr. Rossi says.

Bull, as well, reaped the rewards of fewer phone calls, despite Northwest Laboratory ramping up the amount of testing it provides thousands of miles away from Bellingham. The lab went from providing testing for 67 Florida counties through its contract with the state to also providing baseline testing for 140,000 employees at Florida's registered long-term care facilities—stat.

Initially, Bull viewed the sudden shift in testing volume as a potential issue. "We can't release results back to the employer directly; they have to go to the employee," which requires a robust patient portal, she says. "So that's when I called Suren and said, 'Hey, can we make this happen?'"

In less than three weeks, LigoLab had TestDirectly up and running at the Bellingham lab. Specimens were shipped from testing sites via FedEx at the end of each day and arrived at the laboratory the next morning. The lab completed testing 24 hours from the time of receipt. Within two weeks, Northwest Laboratory had conducted baseline testing on all the long-term care facility employees and begun to test residents, eventually bringing the total number of tests to approximately 190,000.

Bull

While the long-term care facility employees registered for testing themselves and received results through the patient portal, facility administrators registered residents for testing and entered patient information into the portal on residents' behalf. Results were communicated back to administrators through the portal and, in tandem, to the Florida Department of Health, which managed contact tracing and follow-up. The Florida Division of Emergency Management was also able to access TestDirectly to "see what was ordered, what was in processing, and what was completed so they could manage their results in real time," Bull says.

The testing campaign was not without its challenges, however, which led LigoLab to enhance TestDirectly. The

Florida Department of Health, Bull recalls, initiated testing before the platform was fully operational and deployed both electronic and paper processes for registration and specimen collection. The first 10,000 specimens the laboratory received were ordered using handwritten requisitions. This prompted LigoLab to implement software that could digitize handwritten orders using a combination of artificial intelligence and crowdsourcing.

When an order is scanned into the software program, Avunjian explains, the responses in each field are processed through AI models that perform handwriting recognition. If the solution supplies a confidence rate of 95 percent or higher on the AI interpretation, the program accepts and digitizes the response. Responses that have a confidence rate below 95 percent are sent to the Amazon Mechanical Turk marketplace for crowdsourcing validation. Once every response in the form has been validated via AI or crowdsourcing and is digitized, the form is transferred into the LIS as an order. The software can process 1,500 handwritten orders per hour when used in conjunction with batch scanning, Avunjian says.

At CAP TODAY press time, approximately 15 Northwest Laboratory accounts were using the TestDirectly platform for high-volume SARS-CoV-2 testing, including the Washington State Department of Corrections, which encompasses 13 facilities. To expedite the process of adding new accounts to the platform, LigoLab recently incorporated functionality that allows laboratories to configure clients on the platform's backend rather than rely on LigoLab to complete the setup. "This has allowed us to be more responsive, to take more control over our client relationships, and to implement on our own schedule," Bull says. At her suggestion, LigoLab is also working on functionality that allows patients to scan insurance cards into TestDirectly during registration.

Continuing to enhance the platform becomes even more significant as LigoLab works to expand the system's reach into such areas as COVID-19 antibody testing and, eventually, influenza testing. "The whole system is designed not just to work for SARS-CoV-2," says Avunjian, "but for any testing." —*Charna Albert*

Orchard Software implements point-of-care testing network

Orchard Software has introduced the Orchard Point-of-Care Testing Network to help businesses integrate and connect POC testing across multiple locations.

The subscription-based software-as-a-service solution allows users to automate and manage POC testing processes through device integration and system interfacing, enabling electronic test ordering and automated result reporting.

"[It] will be particularly beneficial for senior living facilities, helping them effectively manage their point-of-care testing by tracking devices and operators, managing orders and results, and enabling rapid test turnaround time," according to a press release from Orchard.

The network can assist businesses that require CLIA certification by managing clinical questions and providing data mining and decision-support tools that compile and report required data.

The network also addresses challenges related to COVID-19 by providing advanced decision-support rules for routing reflex testing based on various criteria, automatically sending reflex test orders to reference labs based on CDC guidelines, and auto-verifying results to hasten their delivery.

[Orchard Software](#), *800-856-1948*

Xifin introduces latest versions of LIS and RCM systems

Xifin has announced the release of its Xifin LIS 7 cloud-based laboratory information system and Xifin RPM 12 revenue-cycle management platform.

This latest version of the Xifin LIS further supports high-complexity, high-volume labs by integrating such capabilities as Dolbey and Company's cloud-based voice-recognition solution Fusion Narrate powered by nVoq.

Among the other improvements introduced in Xifin LIS 7 are:

- configurable worklist filters, which allow users to view and filter a broader set of data and save views by individual, role, or laboratory.
- 360-degree case status screens that provide a complete patient overview to aggregate patient data and that provide access to a breadcrumb map that shows the location of an accession in the workflow.
- revised batch-resulting screens that present batches of patient cases for sign-out in a configurable data format, such as by case, specimen, or test.

Among the enhancements in the last version of Xifin's software-as-a-service RCM system, Xifin RPM 12, are:

- expanded client and patient portals. The client portal includes such upgrades as an improved patient responsibility estimator, display of limited coverage policy information by corresponding procedure, and drop-down lists that update dynamically to match text as the user types into a field. The patient portal offers such features as expanded payment options, enhanced patient verification, and the ability to view and print historic patient account balances.
- an advanced analytics Essentials package that depicts pre- and post-COVID-19 productivity, volume, cash, exceptions or errors, top claim denial reason codes, and EP errors fixed.
- automated appeals capabilities, such as denial-triggered workflow automation and electronic/PDF payer-specific forms for select high-volume payers.

[Xifin](#), *866-934-6364*

Lenco lab using CGM LIS in COVID-19 testing program

CompuGroup Medical recently reported that it contributed to Lenco Diagnostic Laboratory launching its COVID-19 testing program in Brooklyn, NY.

Earlier this year, CompuGroup rapidly developed and deployed instrument interfaces to its CGM LabDaq laboratory information system in an effort to expedite COVID-19 testing in client laboratories. This allowed Lenco, a full-service clinical reference lab, to implement its COVID-19 testing program in 10 days.

CompuGroup offers a patient portal for communicating test results and interfaces to help labs fulfill state-mandated requirements for reporting data to health departments.

[CompuGroup Medical](#), *800-359-0911*

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