LabVantage®

Overcoming COVID-19 Sample Handling Challenges with LabVantage LIMS

Biobanks contain sample specimens and associated sample and clinical information, often from many thousands of patients. They serve as valuable libraries for researchers, scientists, and clinicians, increasing the efficiency of patient recruitment into research studies. For this reason, biobanks are widely recognized for driving the development of many effective approaches to diagnose, treat, and cure disease.

Never has the value of biobanks to medical research been more apparent than now, during the COVID-19 pandemic. With global efforts to curtail the spread of the disease advancing at a remarkable rate, biobanks hold vast promise for those seeking vaccines, treatments, and new testing modalities. However, COVID-19 workflows present many unique challenges that must be overcome quickly for such research studies to succeed.

Laboratory information management systems (LIMS), when configured for COVID-19 workflows, allow researchers to integrate new techniques and safety protocols while scaling up to cope with the high volume of samples. One Ivy League health system's biobank was able to rapidly scale up, change workflows on the fly, and train 50 new users to handle the growing sample numbers. It was able, simultaneously, to condense timelines for launching new studies from weeks or months down to as little as four days—a feat previously believed to be impossible.

Its ability to swiftly configure its LabVantage LIMS deployment to accommodate demand for COVID-19 samples and data meant the biobank could immediately support critical research into the SARS-CoV-2 coronavirus for possible therapeutics and vaccines.

The Challenges

During late December 2019, a small cluster of pneumonia cases with unknown etiology was reported in Wuhan city, Hubei Province, China. The cause was subsequently found to be a novel coronavirus, Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), an infection leading to COVID-19. SARS-CoV-2 has since spread rapidly around the globe, causing the World Health Organization (WHO) to declare the COVID-19 outbreak a pandemic on March 11th, 2020, just weeks after the virus was first identified.

Because COVID-19 spreads so fast, and often pre-symptomatically and asymptomatically, the need for prompt testing of large numbers of individuals is vital. This can establish who has the disease, how it affects them, and whether they have developed immunity to SARS-CoV-2. However, testing on such a scale swiftly generates vast numbers of biospecimens and related patient data, putting a massive strain on biobanking sample management capabilities. More efficient ways of working are essential to develop urgently needed therapies.

CONFIGURED FOR COVID-19

The need for COVID-19 lab informatics became immediately apparent: from research labs to healthcare settings, thousands of coronavirus samples were being taken and labs needed solutions to manage those samples and related information.

To help researchers adapt to a rapidly changing environment, LabVantage configured its industry-leading LIMS to support COVID-19 workflows, CDC diagnostic testing, and research applications. The new LabVantage COVID-19 LIMS enables seamless integration of new laboratory techniques, new safety protocols, and new lab personnel into existing setups. Deployed as a comprehensive Software-as-a-Service (SaaS) solution or hosted in the cloud, it can go-live in just weeks.

In addition to unprecedented sample volumes, a further challenge of studying COVID-19 concerns how samples should be handled, especially considering how little is currently known about SARS-CoV-2 and its transmission. Processes must be implemented to ensure samples are collected safely, and that they are transferred to the biobank and on to research laboratories without endangering those analyzing them.

Questions also arise around how best to re-code samples that may initially have been labeled by hand, as well as how to obtain electronic signatures and store informed consent for material to be used for research. Enough information about the specimen and patient is required so that results can be properly linked back to patient symptoms and medical history, while maintaining protected health information. Add to that the fact that processing increased sample numbers inevitably requires a larger workforce, all of whom need adding to and training on the LIMS. Researchers require urgent access to the biobank, making the importance of overcoming these challenges as early as possible abundantly clear.

The problems described here mirror those faced by the LIMS architect for an Ivy League health system's biobank earlier this year. As researchers threw themselves into COVID-19, studies poured in, and the full-time team of nine soon found themselves swamped. Fortunately, having LabVantage LIMS in place allowed them to scale on demand, while condensing the 4- to 6-week timelines typical of new studies down to just days, all without comprising on compliance and regulatory requirements.

The Solution

Beginning a new research study can take months, and often involves a relatively limited budget, few dedicated IT resources, and lengthy LIMS implementation timeframes. To jump-start this process, LabVantage has, for several years, offered pre-configured LIMS accelerators. These have proven to significantly accelerate implementation, meaning researchers can quickly work toward actionable results.

With the LabVantage COVID-19 LIMS, researchers investigating SARS-CoV-2 have immediate access to a comprehensive, industry-standard solution. The LabVantage platform, hosted on the cloud or provided via SaaS, significantly speeds up the process of LIMS implementation—in as little as four weeks—for COVID-19 research. Moreover, the LabVantage COVID-19 LIMS can be readily adapted and expanded to meet changing needs, even beyond coronavirus research, without ramping up costs.

The biobank team at this Ivy League health system has seen multiple benefits of LabVantage's easily configured LIMS for COVID-19 research since the pandemic hit the U.S. in March 2020. Not only has it allowed seamless integration of newly developed methods for sample collection and analysis with established techniques, but it has also ensured those applications align readily with patient information and preloaded CDC-recommended testing workflows and methods. Moreover, with requirements changing rapidly, the flexible, configurable, and scalable nature of the LabVantage's COVID-19 capabilities has been fundamental to keeping up with the alarming pace of the pandemic.

KEEP PACE with accelerated research processes and scaled-up volumes, while maintaining data integrity, with LabVantage COVID-19 LIMS. Learn more at labvantage.com/COVID-19-LIMS

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ABOUT LABVANTAGE SOLUTIONS

A recognized leader in enterprise laboratory software solutions, LabVantage Solutions dedicates itself to improving customer outcomes by transforming data into knowledge. The LabVantage informatics platform is highly configurable, integrated across a common architecture, and 100% browser-based to support hundreds of concurrent users. Deployed on-premise, via the cloud, or SaaS, it seamlessly interfaces with instruments and other enterprise systems – enabling true digital transformation. The platform consists of the most modern laboratory information management system (LIMS) available, integrated electronic laboratory notebook (ELN), laboratory execution system (LES), and scientific data management system (SDMS); and, for healthcare settings, a laboratory information system (LIS). We support more than 1500 global customer sites in the life sciences, pharmaceutical, medical device, biobank, food & beverage, consumer packaged goods, oil & gas, genetics/diagnostics, and healthcare industries. Headquartered in Somerset, NJ., with global offices, LabVantage has, for four decades, offered its comprehensive portfolio of products and services to enable customers to innovate faster in the R&D cycle, improve manufactured product quality, achieve accurate record-keeping, and comply with regulatory requirements.

For more information, visit www.labvantage.com.