New Life for Idle PCR Instruments Following the Sustained Decline in COVID Testing

Feature

How one PCR laboratory optimized workflows, reduced costs, and pivoted operations for improving profitability post-COVID

As variants of SARS-CoV-2 continue to confront physicians, PCR (polymerase chain reaction) instruments purchased for COVID-19 testing may still stand idle more often than not at reference and hospital laboratories. To make matters worse, clinical laboratory administrators must still deal with fluctuating demand for COVID testing, improving the profitability of COVID testing, and maximizing their investment in PCR instruments.

Despite the challenges, Birmingham, Alabama-based Streamline Scientific, formerly Assurance Scientific Laboratories, rallied last year to improve profitability of their now limited COVID testing and, at the same time, expanded lab operations instead of cutting back.

In a recent interview with *Dark Daily,* Streamline Scientific's Chief Scientific Officer Greer Massey, PhD, explained how the lab discovered ways to adjust operations to improve profitability after the drop in COVID-19 testing demand. They started with the testing process.

Results of Testing Process Improvement

1. Shorter turnaround times with faster delivery of test results
2. A reduction in staff time needed for the extractionless COVID testing workflow
3. Optimized use of consumables, such as buffers, magnetic beads, plastics, and other supplies required for COVID and other testing

Laboratory Creativity Led to Value-Added Process Improvements for COVID-19 PCR Testing

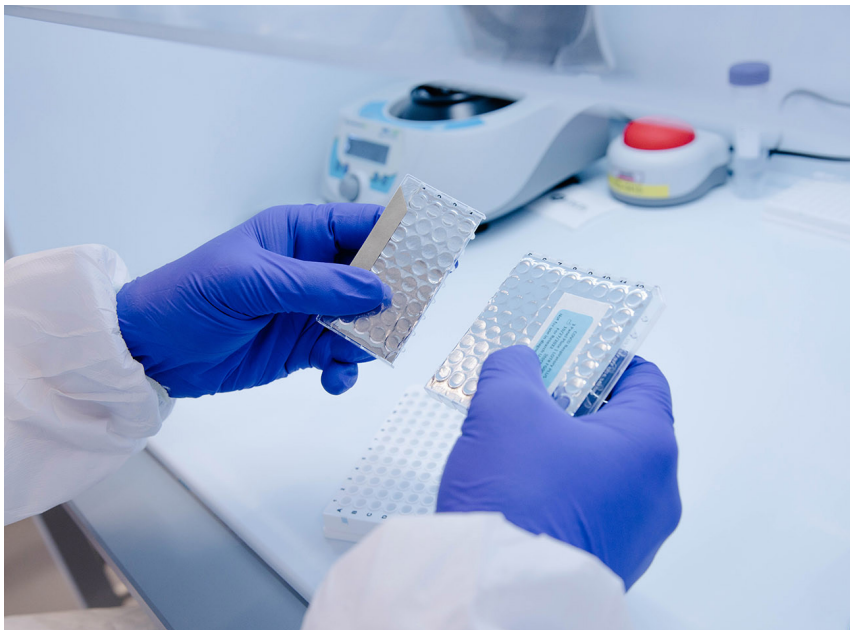
Streamline Scientific's team sought to simplify the COVID-19 testing process and, ultimately, adopted an extractionless PCR method that improved efficiency.

The process improvements have reduced the cost per test by as much as 25%, reducing supply chain issues and improving overall profitability in the now struggling COVID test category.

The benefits of the extractionless PCR process have inspired the lab to further optimize its reagent use. Working with its local supplier and their research and development unit, Molecular Designs, the reference lab now keeps an inventory of preplated PCR assays in sealed and barcode-labeled 384-well plates, as well as 96-well plates developed with a "breakaway" feature to accommodate variable testing volumes and support custom test panels. Plates are customizable from one to 94 targets.

> "Some COVID testing processes are labor intensive. They require an initial step to extract and purify RNA from the collected specimen. Once the genetic material is separated from the specimen, it can then be amplified to look for the presence of the virus. The extraction process requires additional materials, time, and advanced training of medical technologists conducting the work."
>
> — Greer Massey, PhD, Streamline Scientific

The unique breakaway feature (right) of sealed, preplated PCR assays optimizes and customizes test runs not only for COVID-19 but for other infectious disease assays.



"Being able to optimize workflows with items like extractionless and breakaway plates was instrumental in our profitability during COVID peaks and valleys, and it was also instrumental in managing expected TAT," Massey added. "It also allowed us to release other panels such as COVID/Flu/RSV and larger respiratory panels when the importance of COVID-only diagnosis shifted to other important respiratory infections."

Molecular Designs lab techs create a mixture of PCR reagents, or master mix (right), used in the panels.

(Photos: Streamline Scientific, Molecular Designs)

Operationalizing a COVID-Pivot Experience: Consulting and Reagent Supply

Building on its success, Streamline Scientific now provides end-to-end consulting services for reference and hospital laboratories, as well as physician offices that manage in-house PCR testing.

"Streamline Scientific consults with reference, hospital, and physician office labs throughout the nation to share best practices and help identify the equipment, assays, or processes that improve workflow and profitability," said Todd Speranzo, the company's vice president of marketing.

Streamline's local supplier and R&D unit, Molecular Designs is a team of doctors and scientists working to advance molecular diagnostics, Speranzo pointed out. "Their founding physicians entered the molecular diagnostics market focused on the most common pathogens that impact the population—making products that are cost-effective, reduce waste, and are easy-to-use."

The supplier has grown to offer numerous panels, including combination COVID 19-Flu-RSV and respiratory panels, UTI panels, wound/derm panels, sexually transmitted infection panels, gastrointestinal panels, fungal panels, and vaginitis panels; eight antimicrobial resistance classes are available as panel add-ons; and multiple other panels are in development.

> "What we have learned from our customers is how important it is to understand reagent pricing and how that translates into operational profitability. We're also looking for ways to deliver cost-effective infectious disease PCR assays that laboratories can use to expand their testing services while maintaining profitability. Molecular Designs' preplated Simplicity Panels provide convenience, reducing the complexity, time, and costs associated."
>
> — Todd Speranzo, Molecular Designs

Laboratory Outlook: Full Utilization of PCR Capacity and Ability to Respond to Changing Testing Needs

While the implementation of COVID-19 PCR testing has had a positive impact on patient care—and led to growth for reference laboratories and hospital labs—those who invested in PCR molecular testing equipment may face challenges with capacity and meeting changing needs.

TIPS FOR LAB LEADERS SOURCING PCR INSTRUMENTS

- Compare costs; prices have reduced from COVID peak.
- Look beyond COGS for improved profitability; consider preplated options, extractionless, and breakaway plates, amongst other opportunities to improve efficiency and reduce waste.
- Plan for the future; seek a partner with a robust research and development division that considers reimbursement and demand beyond COVID.

As lab leaders have experienced firsthand, nimble and adaptable operations were a critical success factor during the COVID pandemic. With the post-COVID pivot at hand, regional reference and hospital laboratory leaders will benefit from not only scrutinizing their PCR testing menus and costs but deciding what new assays will support opportunities in the year ahead.

—Liz Carey

This content was developed through research and interviews by The Dark Intelligence Group in collaboration with Streamline Scientific, a national reference lab and consulting organization. The article, which has been slightly adapted here, was originally published February 21, 2023, at www.darkdaily.com.

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