

PREVI[®] Isola Provides Positive Impact to Laboratory Efficiency and Speeds Valuable Clinical Information to Physicians

Case Study

ProLab

Perspectives by Allen Foulks, MLT (ASCP)
Microbiology Laboratory Manager



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Challenge	Solution	Impact
Rapid and accurate turnaround time for results is vital in treating suspect urinary tract infections in institutionalized geriatrics to help avoid unnecessary transfers to hospitals, and the associated stress, costs and exposures	Leveraging bioMérieux's PREVI® Isola media streaker, improving productivity and colony isolation	Patented robotic system manages 90 percent of the steps required to process liquid microbiology specimen samples and produces agar plates with well-separated colonies, eliminating unnecessary subculturing to provide results and treatment 24-48 hours earlier
Need to streamline workflow to deliver not only fast, highly confident results but also deliver them cost-effectively	Incorporating automated plate streaker system from bioMérieux	Automated solution improves workflow, adding 3 hours daily FTE for other duties, while better colony isolation eliminates unnecessary subculturing, eliminating more than \$17,500 in plate costs annually

Challenge

- ProLab is a reference laboratory that caters to nursing homes and acute care hospitals in eight states. The Fort Worth facility acts as a centralized microbiology lab that receives cultures from remote facilities inside acute care hospitals and other locations throughout the Dallas/Fort Worth area.

Rapid and accurate turnaround time is vital for infections in the elderly. Nursing homes depend on us to get them quick results to save lives and save costs. If the infection is serious, timely lab results provide the data that helps them make the best treatment decisions. If the infection is less serious, unnecessary hospitalization for an infection that can be treated within the facility can be averted.

Routine patient testing is done monthly on nursing home patients, including a CBC and urine analysis as mandated by the Joint Commission Patient Safety Guidelines for long-term care facilities. Based on microscopic examination as part of the urine analysis, the lab will perform a culture if indicated. In 2010, the Fort Worth lab ran 107,000 cultures, 88,000 of which were urine cultures, a typical ratio for a geriatric patient population.

“In geriatric patients, urine turnaround times are important. PREVI® Isola trimmed 24-48 hours from our old process, which ultimately allows physicians to begin appropriate treatment 24-48 hours earlier.”

Solution

- Prior to the implementation of PREVI® Isola, technicians were able to get a general idea of the number of different organisms by performing gram staining, but still needed to perform subcultures to obtain pure isolates in order to proceed with the ID/ASTs.

ProLab installed PREVI Isola in 2010 with a goal of getting results to clinicians sooner to identify patients who could be treated in-facility, avoiding unnecessary hospital transfers and the associated costs and risks.

“Improved efficiency has resulted in an estimated cost savings of \$17,500 per year in unused Columbia CNA and MacConkey plates.”

Impact

- In most labs today, the pre-analytical phase of microbiology still remains manual and time-consuming. With the PREVI® Isola automated plate streaker, ProLab saw significant clinical improvements as well as improved workflow and more standardized streaking.

Labs often end up manually reculturing no-growth samples, which means an enormous delay in actionable clinical information when they become positive. As part of the PREVI Isola evaluation, ProLab performed cultures struck manually on 20 samples, all of which resulted in no growth. These same samples resulted in the isolation of 35 pathogens when inoculated and plated by the PREVI Isola. Because no-growth plates are always a source of second-guessing in the microbiology lab, the added level of confidence provided by the PREVI Isola offered peace of mind to the team.

After implementation of PREVI Isola, only 5% of cultures now require subculturing versus 30% using manual plate streaking. This improvement has dramatically reduced turn-around time. Since one-third of ProLab’s urine cultures are polymicrobial, it previously took an extra 1-2 days to get results for 30% of the lab’s urine cultures. Now, 25% of the final culture results are reported in less than 48 hours, including *Escherichia coli*, *Proteus mirabilis*, *Staphylococcus aureus*.

“The lab saved three hours of an FTE’s time and had better colony isolation, which resulted in more than 250 organisms effectively worked up with a turnaround time of 24 hours instead of the typical 72 hours for manual streaking.”

Foulks noted that while the workload was heavier on the initial reading due to the better colony isolation, more than 90% of the urine cultures with pathogenic growth were finalized in under 48 hours.

In addition to the clinical improvements of the PREVI Isola, ProLab has noticed many non-clinical improvements, as well.

According to Foulks’ calculations, the PREVI Isola can streak an extra six urine cultures (18 plates) every 30 minutes compared to manual streaking. In their evaluation of the PREVI Isola vs. manual streaking, ProLab performed 500 urine culture comparisons using both methods. The lab saved three hours of an FTE’s time and had better colony isolation, which resulted in more than 250 organisms effectively worked up with a turnaround time of 24 hours instead of the typical 72 hours for manual streaking. Additionally, Foulks has been able to reallocate those daily FTE hours onto other more value-added tasks now.

This improved efficiency resulted in a calculated a cost savings of \$335/week in unused Columbia CNA and MacConkey plates due to the reduction in the subculturing required when the PREVI Isola was used to inoculate and plate the original cultures. Projected plate savings are estimated at \$17,500 annually. “Unintended consequences are often bad,” noted Foulks, “But they have only been good for us since installing PREVI Isola.”

Looking forward, ProLab plans to add positive blood cultures to the lab’s PREVI Isola workload. “The benefits for urine cultures have been undeniable – reduction of overtime, reallocation of FTE duties for more value-added functions, better colony isolation and improved turnaround time for results,” said Foulks. “If we can achieve this improvement across all samples in the lab, we’ll be a much more efficient and valuable partner to our clinicians.”



Allen Foulks, MLT (ASCP)
Microbiology Laboratory Supervisor

Allen Foulks, ASCP, has more than 10 years of experience working in and managing a busy microbiology department, including training, scheduling, budgeting, evaluating and implementing new technologies. He has been the microbiology manager at Professional Clinical Laboratories, Inc., since 2007.

