



Revolutionizing Microbiology: Harnessing the Power of Total Lab Automation and Lean Methodology

BD Professional Services supports the transformation of your laboratory from the onset, to help you achieve greater efficiency and better outcomes.

Our team of certified Lean Black Belt experts can support laboratories and hospitals in their quest for efficiency and continuous improvement.

Find out how one laboratory in Slovenia benefitted from insights and recommendations from BD Professional Services, during the installation and upgrade of their BD Kiestra™ system.



Professor Miroslav Petrovec,

Faculty of Medicine, University of Ljubljana,
Head of the Institute of Microbiology and Immunology

Our laboratory, running more than 500 bacteriology samples per day, services one of the biggest hospitals in Central Europe, with over 2,100 beds, serving around 1.3 million people. In 2013, we introduced BD Kiestra™, a versatile and modular system which we are now upgrading to help meet our growing demand. The support provided by BD during the initial installation and subsequent upgrade has helped us improve our services.

Pre-Install Workflow Assessment

The first key step in the installation process was the site workflow assessment by BD experts focused on identifying areas for optimization. Addressed areas included sample collection, processing, and reading. The assessment led to a series of actions and changes in the lab organization that resulted in the following:

- Total automation from sample processing to reporting. All steps are documented in a daily report, including any malfunctioning.
- Standardization of specimen processing to improve quality of our inoculation, as previously proved in the literature.¹
- Ease of planning with use of the dashboard.
- Efficient resource management and process unification with our partners in the clinical center and in regional hospitals.

Lean Assessment: 6 Years Later

One of the most valuable experiences was the onsite Lean Assessment conducted by the BD Lean specialist who brought deep expertise in Lean Methodology and extensive exposure to clinical laboratories across various countries and continents. The on-site presence, for the whole duration of the assessment, was useful to get our questions answered in real time.

All the data* generated by BD Kiestra™ Total Lab Automation (TLA) since its installation over 10 years ago, were assessed as to find ways to streamline our processes with a key focus on sample processing and times to result.

This resulted in recommendations on:

- 1- Loading and prioritization of samples
- 2- Improving worklists' configurations to focus on urgent samples.
- 3- Standardization of labeling and printed fields.

*Data generated by the BD Kiestra™ Total Lab Automation and consolidated through the BD Kiestra™ Lean Report. This report indicators such as sample time to process, sample workload or even incubator occupancy.



'We had a world expert in Lean laboratory management at our disposal!'

**Professor Miroslav Petrovec,
University of Ljubljana**

Baseline Workflow Assessment

We were given helpful advice on how to make better decisions using data from BD Kiestra™ TLA and the Lean report, which included data and infographics on sample distribution, workload, occupancy, and results. This helped us improve how our lab works.

The Baseline Workflow Assessment gave us useful insights into our processes, helping us handle issues more effectively and reduce delays. We now plan to use this approach to support our ongoing improvements.

BD Professional Services Recommendations

I would highly recommend BD Professional Services for workflow optimization to other laboratories.

The methodologies and principles shared by the BD specialists are not only relevant to our current processes but are also universally applicable to other laboratories and diagnostic activities. The adaptability of Lean management makes it a powerful tool across various functions.

Furthermore, we are eager to welcome the Lean specialist back within the next year for a follow-up assessment and to receive additional recommendations for continued improvement.



Sabina Pervic,

Frontline Support Specialist - University of Ljubljana

The BD experts brought valuable hands-on experience from working with laboratories across Europe and beyond. Their broad perspective was especially helpful as we worked to make our workflow more efficient and effective.

Putting the BD Lean Assessment recommendations into practice helped us to better follow best practices in sample collection, processing, incubation, and result reading.

Thinking in lean terms opened my eyes to how data could be used to rethink our protocols and key performance metrics.

Moving forward, I plan to incorporate the lean mindset into my everyday work.



Miha Sest,

Frontline Support Specialist - University of Ljubljana

The addition of the BD Kiestra™ InoqlA Standalone and three ReadA modules to our TLA system is expected to help boost workload capacity, improve standardization, and support our lean approach. BD's lean recommendations help us with our goal of delivering fast, accurate results with minimal errors. The BD Professional Services team proved strong expertise, and their Baseline Workflow Assessment offered valuable insights into both our lab operations and my daily work.

'To optimize and enhance the efficiency of an automated microbiology lab, simply installing equipment isn't enough. It necessitates strategic workflow adjustments and workforce support to address workplace challenges. BD consultants collaborated with University of Ljubljana to establish baseline KPIs, identify opportunities, implement solutions, and provide LEAN training to empower the customer. This training helps sustain changes and facilitates continuous improvement events'

Jolet Sonsma, Diagnostic Solutions Manager, Professional Services, EMEA



1. Croxatto A et al. Comparison of inoculation with the Inoqua and WASP automated systems with manual inoculation. *J Clin Microbiol.* 2015;53(7):2298-2307.

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