

LEAN Lab Layout

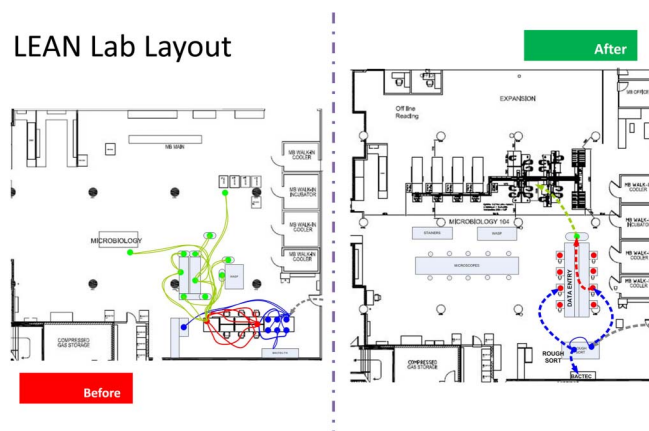


Figure 3 LEAN lab layout.

524 **TRANSFORMING A CANADIAN MICROBIOLOGY LABORATORY: LABORATORY AUTOMATION AND LEAN PROCESSES REDUCE ERRORS, IMPROVE STANDARDIZATION AND RESULT QUALITY WHILE IMPROVING PRODUCTIVITY**

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Background Focused on excellence and innovation, DynaLIFEDx has transformed their Microbiology laboratory, which serves hospital and community patients, with the BD Kiestra Total Laboratory Automation (TLA) system.

Objectives In 2013, DynaLIFEDx partnered with Becton Dickinson to implement the Kiestra TLA driving transformation from a traditional microbiology laboratory to a high quality, standardized, LEAN operation supporting improved patient care.

Methods LEAN process observation, change management, value stream mapping and simulation modelling tools allowed for the design of the optimal BD Kiestra Technology and supported process improvement planning for every aspect of the laboratory operation.

Results Impressive results were achieved through the integration of People, Process and Technology. Employing automatic barcoding and media selection reduced manual process errors by 87%. Smart Read A incubators provide optimal growth conditions for earlier detection of positive cultures. High resolution digital images support improved accuracy and TAT. The implementation of single piece flow supported a 67% reduction in time from receipt in the lab to planting by the TLA system.

Conclusions Current practices in diagnostic microbiology laboratories are manual, error prone and time consuming leading to delays in critical reports. Automation systems have the potential to revolutionize patient care by improving standardization and time to result. However; as the results obtained at DynaLIFEDx demonstrate, only by combining this technology with up front and downstream process improvements, can the full advantages of the system be realized. Implications of the data reported here include significant improvements in therapy delivery, improved patient outcomes and changes in diagnostic reporting guidelines.

With single piece flow and using the Inoqula:

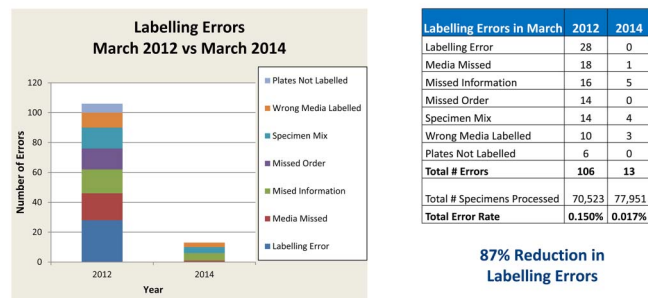
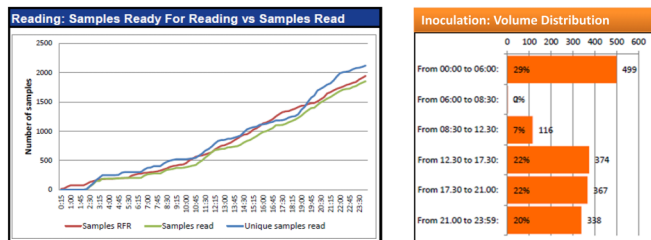


Figure 1 Fewer processing errors.



- Staffing scheduled to align with specimen arrival and ready to read times allocated across 24 / 7.
- Allows for steady distribution of work and improved TATs.

Figure 2 Staffing matches demand.