BIOMÉRIEUX

CLARION™ LAB ANALYTICS

DASHBOARDS GUIDE

PIONEERING DIAGNOSTICS

OVERVIEW

CLARION™ Lab Analytics is an add-on data visualization module that provides advanced business intelligence to MAESTRIA™. This module utilizes state-of-the-art technology to allow users to compare data, generate reports, and customize charts for tailored visualizations.

CLARION™ Lab Analytics comes with a selection of dashboards pre-built by bioMérieux to convert laboratory and hospital data into insightful and actionable information to support Antimicrobial Stewardship and Lab performance.

This guide will provide an overview of each dashboard provided in CLARION™ Lab Analytics.

LAB MANAGER DASHBOARD

4 Lab Manager Dashboard
Allows lab managers to have a synthetic overview of the lab performance

BLOOD CULTURE DASHBOARDS

5 Blood Culture Analysis
Provides an overview of the blood culture analysis including positivity and contamination rate

6 Blood Culture Efficiency
Provides insights regarding efficiency of the blood culture workflow, including load times and instrument capacity

7 Blood Culture Bottle Volume
Identifies quality issues and ineffective blood culture collection practices through insight regarding the volume of blood measured by the BACT/ALERT® VIRTUO® system

8 Blood Culture Contaminants
Identifies quality issues and ineffective blood culture collection practices through insight regarding the contamination rate linked to blood culture management

ID & AST DASHBOARDS

9 ID & AST Analysis
Provides an overview of organisms found in the laboratory and their associated susceptibility profiles

10 Organisms Trend
Provides insights into the incidences of organisms

11 MDRO Phenotypes
Provides an overview of multi-drug resistant organism (MDRO) phenotypes found and distribution per organism

12 Cumulative Antibiogram
Provides an easy-to-understand and manipulate Cumulative Antibiogram to the Antimicrobial Stewardship committee

LAB PERFORMANCE DASHBOARDS

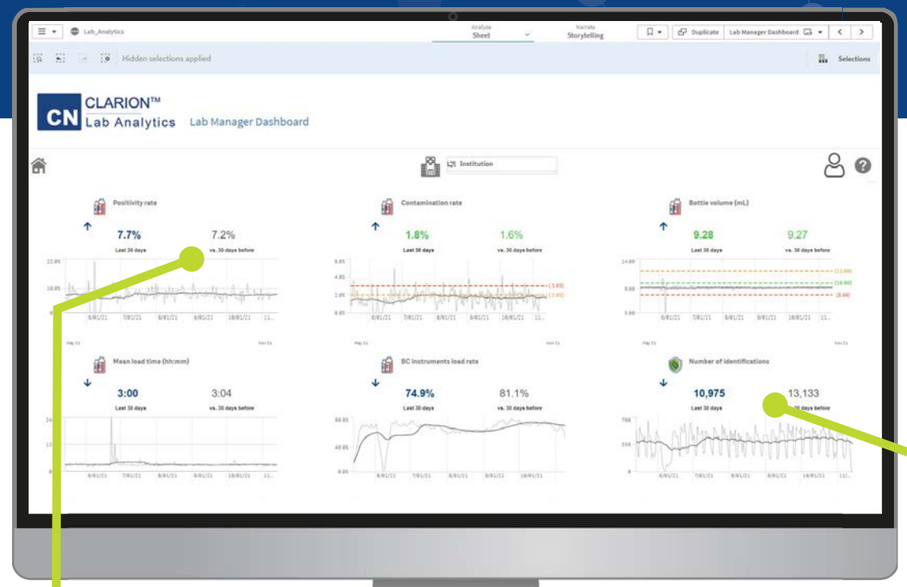
13 Lab Efficiency
Provides an analysis of the time-to-results and disposable usage within the laboratory

14 Gram Staining
Provides an overview of Gram staining results from positive blood cultures

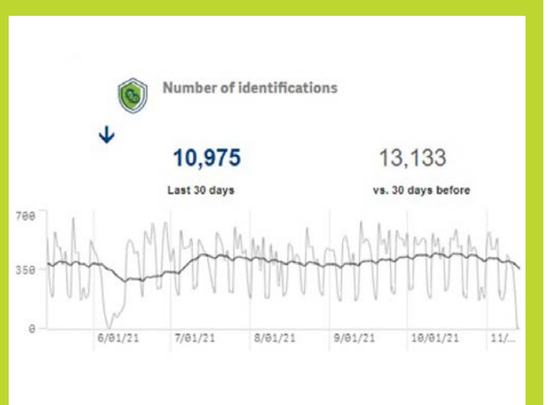
15 VITEK® MS Spotting
Provides an instrument-specific overview of key items relating to performance and workload

LAB MANAGER DASHBOARD

Time is of the essence in the microbiology lab, and it is important that data is delivered in a timely manner. The lab manager dashboard delivers a few of the top Key Performance Indicators (KPIs) in the lab in one concise view. Providing everything from average blood volume to laboratory time-to-result, this customizable dashboard provides vital information in a matter of seconds.



Positivity rate for the last 30 days, as well as the comparison to the 30 days prior and the global trend for the last 6 months

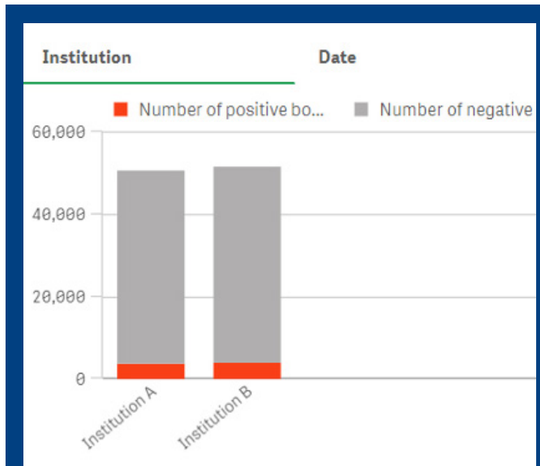


Number of identification results for the last 30 days, as well as the comparison to the 30 days prior and the global trend for the last 6 months

BLOOD CULTURE ANALYSIS

The blood culture workflow is a key aspect in the microbiology laboratory. Having the necessary information to assess the lab's blood culture processes is vital to antimicrobial stewardship initiatives. In the Blood Culture Analysis dashboard, one can visualize a variety of blood culture KPIs in one view. Contamination rate, positivity rate, results by location or bottle type, and many other important statistics can be seen in this dashboard.

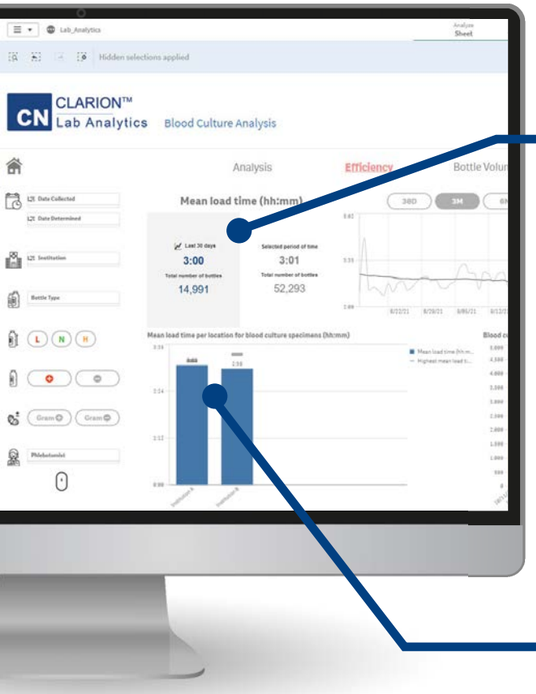
Percentage of positive bottles over the last 30 days and compare the result to a specific period of time

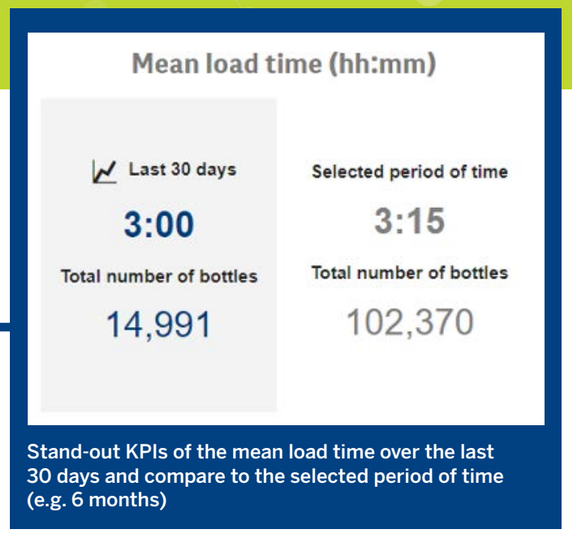


Number of positive/negative bottles by location, date, or bottle type

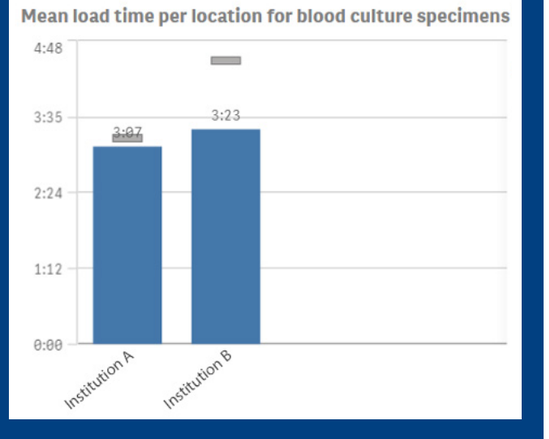
BLOOD CULTURE EFFICIENCY

Efficiency and workflow optimization are top of mind for a lot of laboratories. The Blood Culture Efficiency dashboard gives the user a concise location to review efficiency statistics over specific periods of time. This dashboard contains mean load times for the last 30 days, mean load times per location, and the positivity rate reported from the bioMérieux blood culture system(s).





Stand-out KPIs of the mean load time over the last 30 days and compare to the selected period of time (e.g. 6 months)



Graphical representation of the mean load time by location (hospitals, wards) for blood culture specimens

BLOOD CULTURE BOTTLE VOLUME

The optimum recovery of pathogens from blood depends on culturing an adequate volume of blood[1]. This dashboard contains a variety of graphs and stand-out KPIs surrounding this crucial topic. In near real-time, this dashboard allows you to visualize the average bottle volume, as well as the volume analysis by BACT/ALERT® VIRTUO® bottle type, phlebotomist, and location. It helps identify quality issues and ineffective blood culture collection practices (bottle volume, contamination).

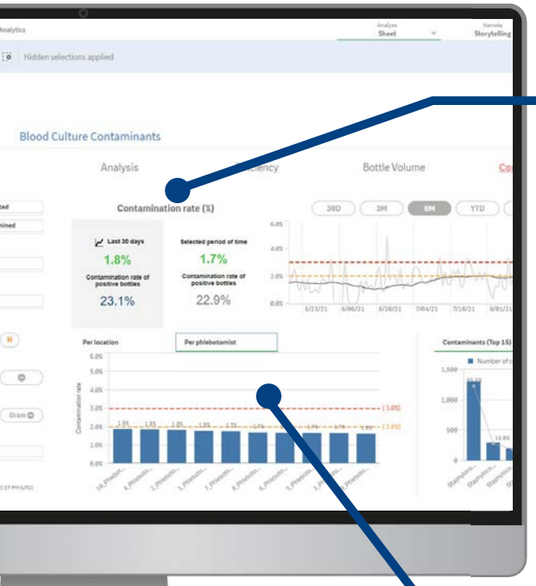
Volume analysis per phlebotomist—showing the percentage of time the phlebotomist is in the high, normal, and low fill volume ranges

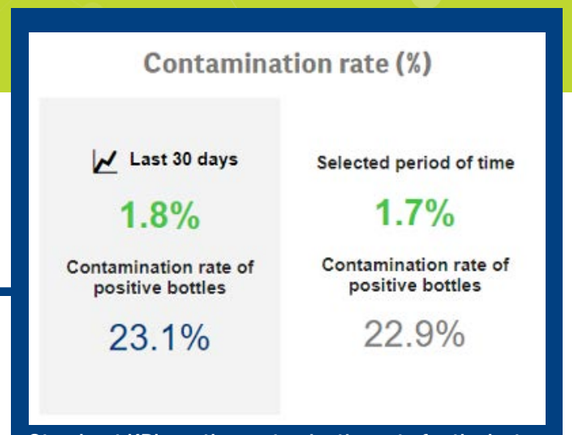
Volume analysis per phlebotomist type - showing the standard deviations in addition to the averages

1. Birkhamshaw.E et al. Increasing the volume of blood received in adult paired blood culture bottles at a regional public health laboratory: results of a quality improvement project to optimise the diagnosis of bacteraemia. Inf oprev in Practice. 2019

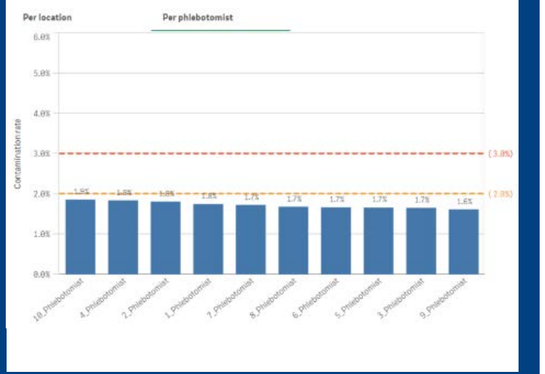
BLOOD CULTURE CONTAMINATION

Contaminated blood cultures can increase patient treatment costs and extend hospital length of stay[2]. This dashboard displays contamination rates in several easy-to-understand visuals. It showcases the contamination rate over the past 30 days, as well as the contamination rates by location and phlebotomist. Like all dashboards in this module, the charts can be filtered to specify the analysis timeframes, as well as drill down into patient or specimen locations.





Stand-out KPIs on the contamination rate for the last 30 days, as well as the contamination rate of positive bottles and compare to the selected period of time (e.g. 6 months)

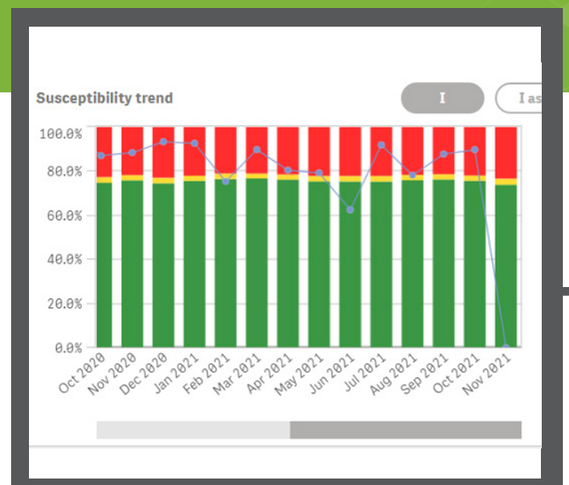


Average contamination rate per phlebotomist and location (e.g. wards)

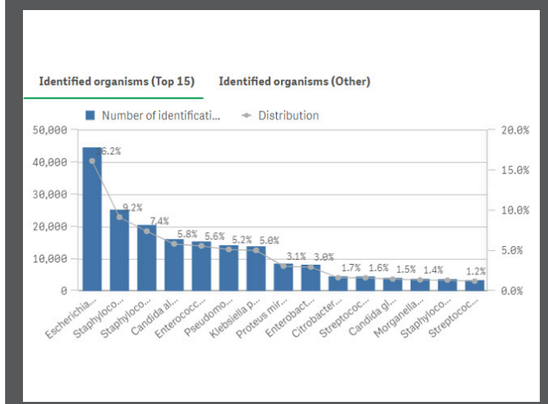
2. Doern.V et al. A Comprehensive Update on the Problem of Blood Culture Contamination and a Discussion of Methods for Addressing the Problem. Clin Micro Review. 2019

ID & AST ANALYSIS

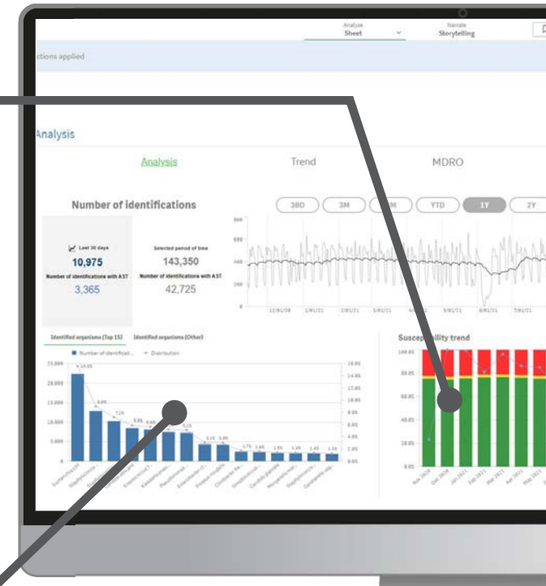
In a 2019 study, the combination of an Antimicrobial Stewardship Program (ASP) and VITEK® 2 AST for urine, blood, and sputum cultures demonstrated a significant reduction in time to isolate identification and AST results, which translated to a reduction in antibiotic length of therapy and hospital length of stay[3]. Availability of ID & AST results and the applicable statistical information is crucial for analyzing trends and recognizing bottlenecks in workflow. This dashboard provides an overview of the ID & AST results reported from the connected bioMérieux equipment, including susceptibility trends and the most reported organisms.



Susceptibility trends over the designated period of time



Number of identification results by organism type



3. Cavalieri SJ, Kwon S, Vivekanandan R, et al. Effect of antimicrobial stewardship with rapid MALDI-TOF identification and Vitek 2 antimicrobial susceptibility testing on hospitalization outcome. Diagn Microbiol Infect Dis. 2019;95(2):208-211

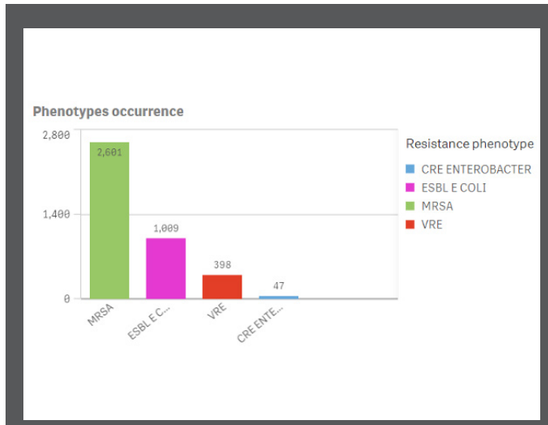
ORGANISM TREND

Visualize the number of organisms occurring in your institution in one easy-to-understand dashboard. This dashboard provides two charts dedicated to the number of identifications per organism type during a specified time period. These graphs can be filtered to specific resistance phenotypes, Gram-positive or Gram-negative, to create a tailored view for the insights you need.

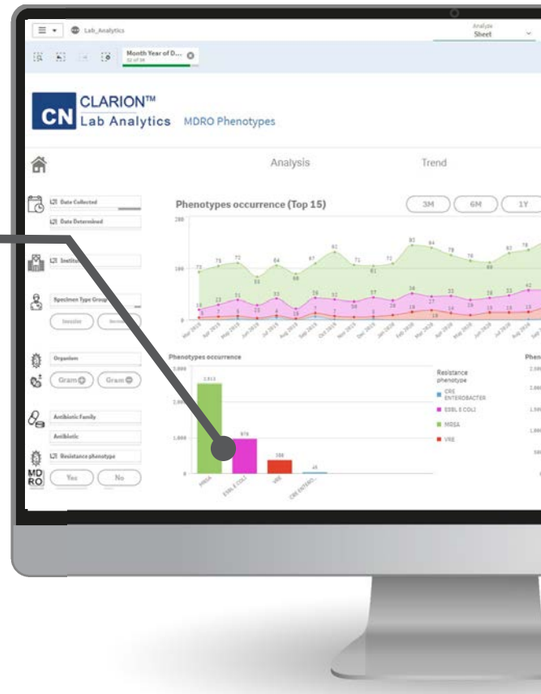
Number of identified organisms by type within a time frame

MDRO PHENOTYPES

It is important for an institution to monitor and track the presence of multi-drug resistant organisms (MDRO) in specific wards. The CLARION™ Lab Analytics MDRO Phenotypes dashboard allows the user to quickly visualize the MDRO trends in an institution, as well as filter down to specific locations to create a targeted view.

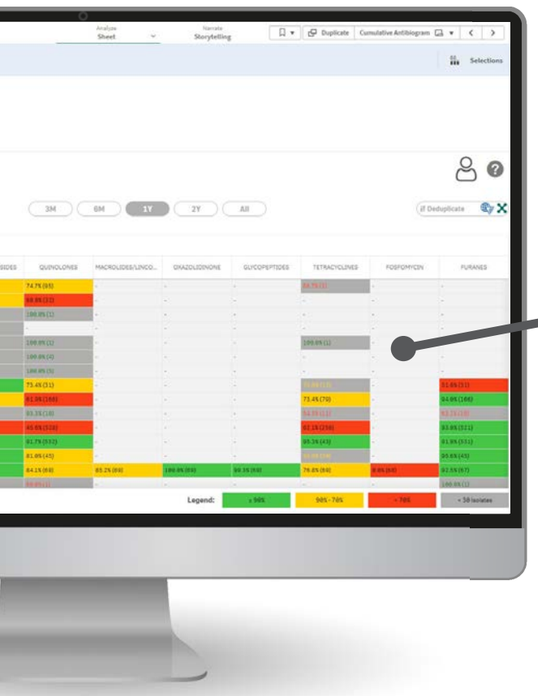


Number of MDRO phenotypes



CUMULATIVE ANTIBIOGRAMS

Cumulative Antibiograms are some of the most utilized reports to guide empiric therapy. The Cumulative Antibiogram in CLARION™ Lab Analytics is created in seconds and can be readily shared with critical stakeholders by exporting into a PDF, image, or data file. The Cumulative Antibiogram is color coded for susceptibility thresholds, which can be adjusted to fit the unique needs of each lab. This table can be easily filtered to specific wards but also organisms, resistance phenotypes, and antibiotics to draw targeted conclusions.

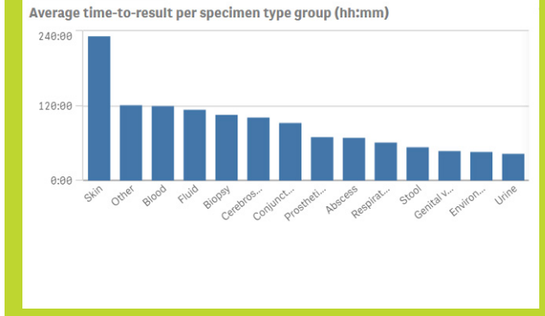


	Amikacin	Gentamicin
Escherichia hermannii	100.0% (20)	95.0% (20)
Hafnia alvei	97.1% (307)	98.4% (308)
Klebsiella aerogenes	98.5% (1,517)	98.1% (1,517)
Klebsiella oxytoca	91.7% (2,022)	86.0% (2,024)
Klebsiella pneumoniae	89.9% (9,197)	79.3% (9,198)
Klebsiella pneumoniae ssp pneumoniae	100.0% (12)	50.0% (12)
Klebsiella spp	90.0% (20)	85.0% (20)
Kluyvera ascorbata	100.0% (4)	100.0% (4)
Kluyvera cryocrescens	100.0% (1)	100.0% (1)
Leclercia adecarboxylata	100.0% (12)	100.0% (12)
Lelliottia amnigena	100.0% (1)	100.0% (1)

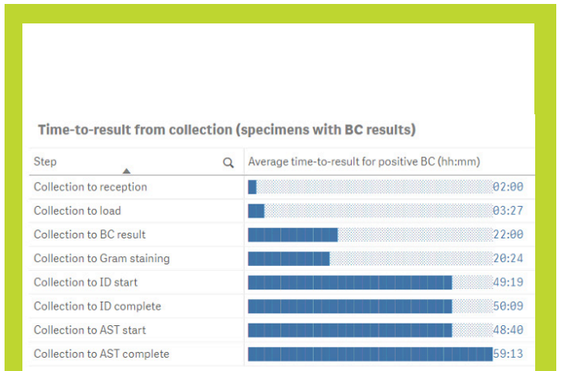
Color-coded, tabular format for easy reading and interpretation (percentage of susceptibility)

LAB EFFICIENCY

Dive deeper into the analysis of workload and workflow efficiency in your laboratory through the Lab Efficiency dashboard. This dashboard focuses on breaking down workload information into easy-to-understand graphs and charts. Microbiology laboratories face growing daily challenges. In spite of ever-higher workloads, microbiology laboratories need to deliver accurate and fast results, ensure regulatory compliance, keep costs down and make the most of staff skills. Today's top lab challenges are shortening time-to-result to support better patient care, empowering staff and optimizing resource management, and increasing productivity and quality.



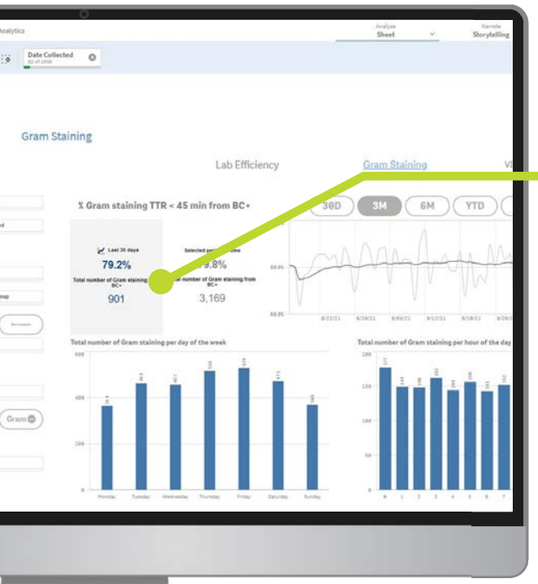
Average time-to-result per specimens type and period

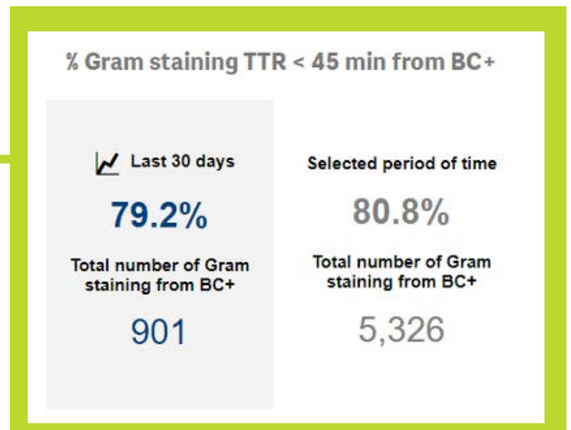


Time-to-result for each single step of the lab process per specimen type

GRAM STAINING

The results of Gram staining of positive blood cultures are important factors influencing appropriate therapy. Rapid staining contributes to the early initiation of therapy. This dashboard provides an overview of Gram staining of positive blood cultures, including the percentage of results with a time-to-results inferior to 45 minutes (configurable duration).



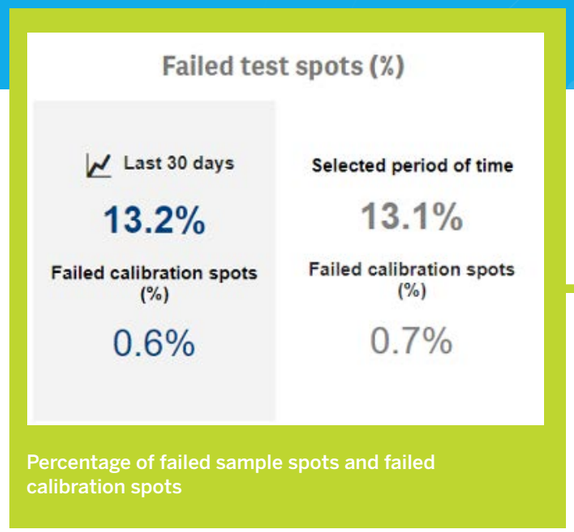


Percentage of Gram staining time-to-result <45 minutes* for positive blood cultures

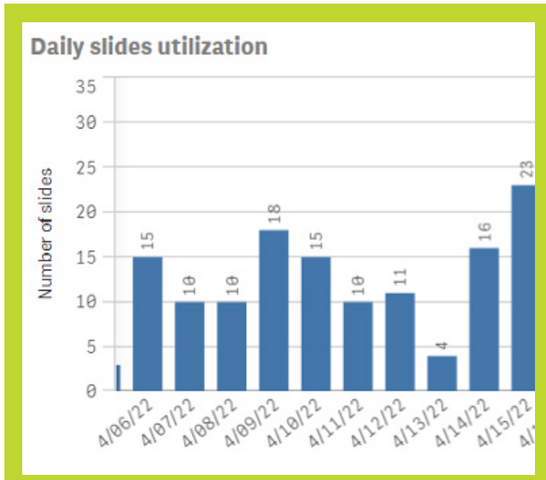
** Example of predefined target*

VITEK® MS SPOTTING

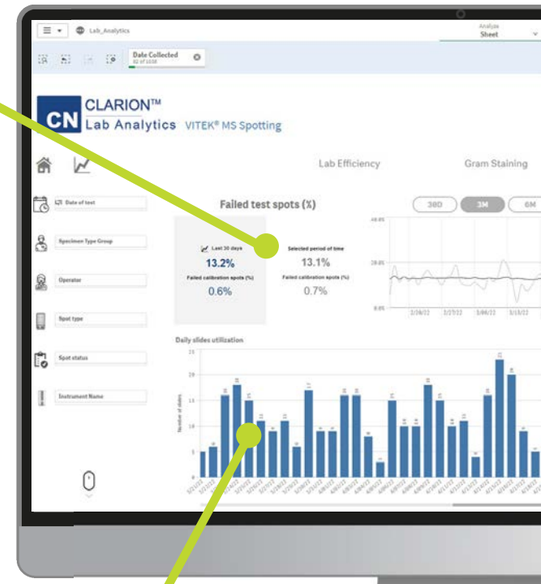
Keep track of key VITEK® MS and VITEK® MS PRIME activities with this instrument-specific dashboard. This page focuses on key items related to performance and workload. For example, the number of successful and failed sample spots can be seen as a trend line over time, and key operator performance is indicated through a table dedicated to successful and failed sample spots per operator. There are specific filters on this dashboard to select the setup operator, spot type, spot status, and instrument name in order to gather discerning insights.



Percentage of failed sample spots and failed calibration spots



Daily utilization of sample spots and disposables



DISCOVER
BIOMÉRIEUX VISION SUITE
DATA-DRIVEN DECISION MAKING

BIOMÉRIEUX VISION SUITE turns laboratory and hospital data into insightful, actionable information to support diagnostic and clinical decisions at all stages to better support antimicrobial stewardship.

By providing a comprehensive suite of software solutions that collect, analyze, and merge various sources of data, BIOMÉRIEUX VISION SUITE empowers you to make the right decisions at the right time.

CLARION™

bioMérieux S.A. • 69280 Marcy l'Étoile • France • Tel.: + 33 (0)4 78 87 20 00 • Fax: +33 (0)4 78 87 20 90
www.biomerieux.com