

THE ESSENTIAL GUIDE

TO MAXIMIZING LAB PERFORMANCE WITH YOUR NEXT ANALYZER PURCHASE



A COLLECTION OF STRATEGIES AND STORIES FROM TODAY'S MOST INNOVATIVE LABS

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CHAPTER 1

THE ESSENTIAL GUIDE

TO ACHIEVING TRUE LAB STANDARDIZATION



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For clinical laboratories of all sizes, elevating efficiency and care are primary goals. The key to achieving this is through lab standardization—across all locations of a health system. The CDC defines lab standardization as when “test results with the same, high levels of accuracy and precision can be reproduced across measurement systems, laboratories, and over time.”¹ As a direct result, data from different analyzers can be used interchangeably.

Standardization provides labs with a unified platform, which is the foundation for more efficient operations and workflow. It further simplifies and improves clinical lab medicine with common systems, processes, maintenance, and relationships. Without lab standardization, true efficiency cannot exist.

But beyond efficiency within the lab, standardization is essential to quality outside the lab. As healthcare centers are consolidating into larger integrated health networks, standardization supports higher-level goals. It enables better healthcare economics by creating cost efficiencies on a grand scale. And by facilitating larger, consistent datasets, it enables healthcare professionals to interpret greater health trends for true population health management.

Reference: 1: Laboratory Quality Assurance and Standardization Programs. (2014, July 29). Retrieved from: www.cdc.gov/labstandards/

While many labs are seeking the benefits of standardization, beware—every vendor defines standardization differently. When you look closer, you can see dramatic differences in the levels of standardization and the value-based benefits they bring. St. Charles, like many other leading health networks, chose to standardize on Roche analyzers. This afforded them a series of standardization benefits that were essential for optimizing their efficiency.

Read on for an overview of the seven essential benefits of standardization, and how they can set your lab up for success. This will help you realize the highest level of clinical and economic value that your entire healthcare system—and your patients—will appreciate.



The need for standardization:

St. Charles Health System

System profile

- Four-site health network
- Largest provider of medical care in central Oregon
- Serves more than 240,000 people in a 32,000-square-mile area
- >2.4 million clinical chemistry/immunoassay tests/year

Pre-standardization:

- 3 sets of ranges and results
- 4 maintenance schedules
- 4 user interfaces
- 3 middleware solutions



Not having the same analytics in each of our sites presented some problems: transfer patients had to be rebaselined, economies of scale with regard to staffing, reagents, and costs were hard to achieve. We are no longer four separate hospitals. We are one health system. We need our labs to function as one so that we can efficiently improve care.”

- **Chuck Huggins**

Manager of Technical and Clinical Operations
St. Charles Health System.



Solution: one standardized analytical platform across all system locations

NON-standardized definitions

Some vendors define standardization as **vendor consolidation**. This may not align with the benefits of true standardization, as a single vendor may not use a single analytical platform across labs of different types and sizes.

Other vendors define standardization as using **consistent processes and workflows**. While this is important to achieving internal operating efficiency, it does not support standardized test results and reference ranges across a population of patients.





Essential benefits of standardization

ONE REFERENCE RANGE IMPROVES THE SPEED AND ACCURACY OF CARE

With standardized, common reference ranges, physicians no longer need to interpret results from different locations. This supports the delivery of faster, safer care. It also alleviates the need for rebaselining, which eliminates unneeded time and expenses in achieving usable results.

Furthermore, one common reference range is foundational to population health management. When health networks can access standardized data across care locations, they can analyze health on the population level. With this, they can help patients get ahead of disease progression and avoid costly exacerbations.

Population data can help answer key questions, such as:

- What percent of patients with diabetes have HbA1c in poor control (>9%)?
- What percentage of patients have low density lipoprotein < 100 mg/dL?

Steve Raymond,

Lab Manager at St. Charles Health System, summarizes,

“Now, our reference ranges are the same at all four of our facilities. If a patient has been transferred, we can be fairly certain whether there has been a change.”

Overall, this essential benefit helps optimize treatment quality, the flow of care, and the potential to elevate that care to the population scale.



The drawbacks of non-standardized reference ranges

- Requires laboratorians to rebaseline and re-interpret results, which—
 - *Increases the risk of diagnostic and treatment errors*
 - *Demands additional time, expenses, and labor*
- Prevents patients and physicians from moving seamlessly across care locations
- Impairs ability to manage population health
- Reduces staff productivity and morale
- Reduces patient satisfaction





ONE USER INTERFACE SIMPLIFIES STAFFING AND TRAINING

Having only one user interface alleviates the need for staff to master multiple software platforms. Chuck Huggins clarifies, “When choosing our new platform, the best-case scenario included standardizing on common software. This would help us simplify our process in seemingly small, but important ways.”



One system



Less training/
spending needed



Staff can work
across locations



Staff can support
each other through
absences

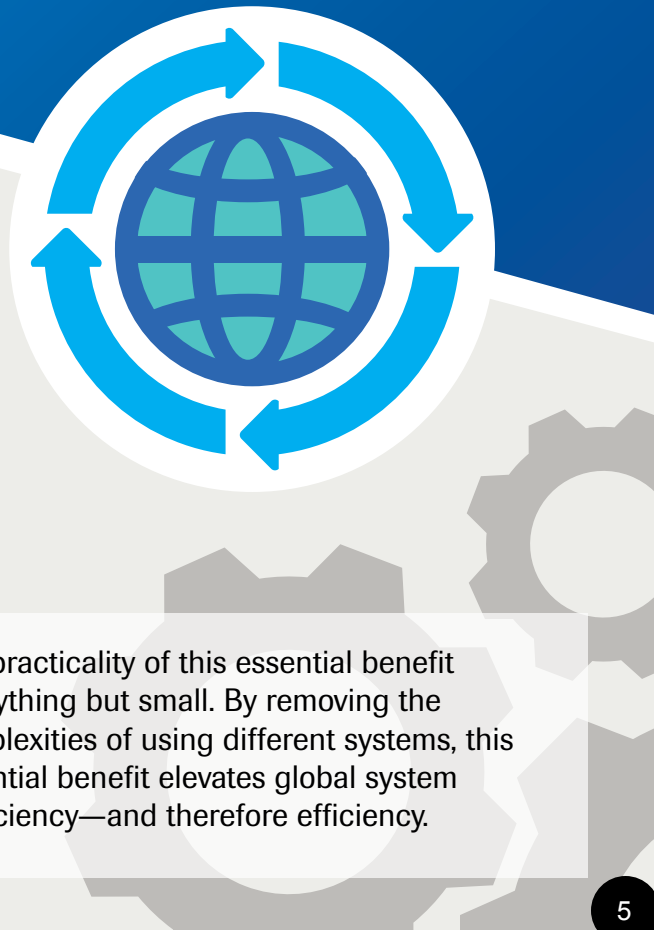
“A few years later, our choice for Roche system analytics is helping us share staff—a very real-world advantage.”

- Chuck Huggins

Manager of Technical and Clinical Operations
St. Charles Health System

The drawbacks of multiple user interfaces

- Staff need to become proficient in multiple systems
- Increases training costs
- Staff are unable to cover for each other in the event of absences



The practicality of this essential benefit is anything but small. By removing the complexities of using different systems, this essential benefit elevates global system proficiency—and therefore efficiency.



ONE REAGENT PACK DESIGN SIMPLIFIES WORKFLOWS AND INVENTORY MANAGEMENT

With common disposables that support a common process, labs experience a number of advantages.

Primarily, they are better suited to integrate within a healthcare system. “All lab locations have the same ready-to-use reagents packs, which makes sharing easy,” explains Steve Raymond, Lab Manager at St. Charles Health System.

In addition, labs are positioned for better inventory management. With only one reagent pack design, there is inherently less waste and less space needed for reagent refrigeration.

The drawbacks of multiple reagent pack designs

- Creates inefficiencies that stifle health network integration
- Leads to sub-optimal resource sharing
- Creates additional waste
- Consumes excessive space for reagent refrigeration
- Inefficient inventory management with multiple part numbers

Not only does this essential benefit promote new efficiencies, but a standard reagent pack design can cut the number of prep steps by more than half.



ONE ANALYZER PLATFORM TO MAINTAIN

STREAMLINES OPERATIONS

Lab standardization results in fewer analyzers, which reduces the maintenance burden. As a result, lab staff have significantly less need to divert their attention away from clinical excellence and adding value.

Optimizing the maintenance process comes with time, practice, and technical mastery. An operator can more quickly achieve this when applying efforts to the same platform each work day, versus multiple analyzers with multiple maintenance protocols.



Every minute of preventative maintenance is worth it. We can adjust our schedules and prevent any unscheduled downtime.”

- Julie Thorpe

Chemistry Supervisor
St. Charles Medical Center

The drawbacks of multiple analyzer platforms

- Greater staff training requirements
- Greater maintenance needs
- Greater time required for maintenance optimization on each platform

This essential benefit enables lab staff to focus on value-added tasks, not their analyzers.

ONE MANUFACTURER FOR PRE-ANALYTICS AND ANALYTICS

MAXIMIZES COMPATIBILITY AND RELIABILITY

When pre-analytics and analytics systems are purposefully designed to work together, labs realize extraordinary benefits.

- **Compatibility:** processes run more smoothly across systems, for true operational synergy
- **Reliability:** lower risk of misalignments between systems, for true operational dependability

Manufacturing quality outcomes

- The Roche **cobas**[®] 8100 automated workflow series and MPA were designed from the ground-up to work seamlessly with the **cobas**[®] 6000/8000 systems, for optimum performance in mid- and high-volume testing
- This design achievement is the result of a 36-year manufacturing partnership between Roche and Hitachi

The drawbacks of multiple manufacturers for pre-analytics and analytics

- Potential incompatibilities between pre-analytical and analytical systems
- Elevates risk of setbacks when systems fail to work together properly
- Increases burden on lab staff to develop workarounds for upholding testing excellence

This essential benefit not only maximizes performance inside the lab, but helps ensure unwavering quality of care for patients.



ONE MIDDLEWARE IT SOLUTION EASES WORKFLOW MANAGEMENT

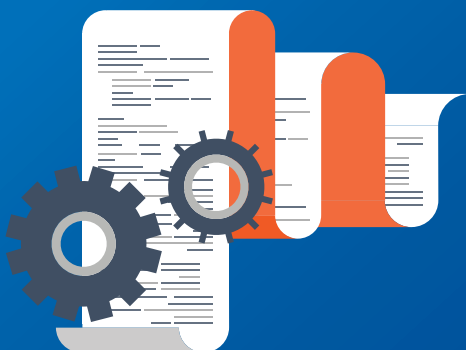
Having a single middleware system simplifies testing processes and data interpretation, due to a standardized application for all middleware functions. This supports quality and speed of care delivery, and reduces risk of error.

At the University of Iowa Hospitals and Clinics, Scott Davis, Medical Laboratory Scientist Supervisor, realized these benefits almost immediately after implementation. He took decisive action. “We started with middleware in our chemistry department alone. It worked so well, we quickly expanded it to hematology, urinalysis, coagulation, and immunoassay,” he said. “Now, our entire core lab is outfitted with the IT that keeps us working smart and in control.”

The drawbacks of multiple middleware systems

- Increases workflow complexity
- Adds training costs
- Staff need to become fluent in using different software, writing different rules, and leveraging different capabilities all at once

This essential benefit simplifies processes through consistent training, use, and management across all analytic functions.



ONE SERVICE CONTRACT SIMPLIFIES SUPPORT

Labs that have not consolidated their instruments onto a standardized testing platform pay a penalty in another often overlooked area—multiple service contracts and potentially multiple service vendors. Having a single service contract greatly increases cost-efficiency, while also making it easier to receive fast support.

*“Key reasons for our satisfaction with the **cobas**[®] system are the training, service, and technical support from Roche, which went above and beyond the call of duty. We need a partner that eliminates worry about whether we can get someone to come for service. In that regard, Roche has been extremely helpful. That was the most important factor in our decision, and our decision was the right one.”*

- Vivian Chantakrivat

Manager of Laboratory Core Clinical Services
Providence Saint Joseph Medical Center

The drawbacks of multiple service contracts

- Cost-inefficiency in paying for numerous contracts
- Need for staff to understand the conditions of additional service agreements
- Potential lack of clarity in which service provider to call when an issue occurs

Beyond enabling labs to focus resources, this essential benefit supports greater uptime and customer satisfaction through more efficient analyzer upkeep.

DOING MORE WITH LESS

When choosing an IVD testing system, don't just demand standardization—demand standardization on the highest level. This not only enables efficiencies inside the laboratory, but better care across every patient touchpoint of your health system. At the core, lab standardization enables you to do more work on fewer instruments, through consolidation of workflow, systems, and spending. It further unlocks the potential to elevate care through population health management.

Lab standardization is essential for leading labs, as it provides widespread benefits:

- **Benefits to patients:** receive consistent care regardless of clinical setting
- **Benefits to healthcare providers:** fast clinical decision-making without reference range confusion
- **Benefits to hospital administrators:** achieve greater cost efficiencies
- **Benefits to your entire health system:** unlock the potential of population health management



“We had 12 analyzers, seven platforms, three vendors for chemistry equipment. When we switched to a standardized Roche platform, we expected 5-10% savings in labor and supplies. In actuality, we realized 15%.”

- Lauren Thomas

Director of Laboratory Services
Southeast Health

*“With the new **cobas**[®] system, we have a third fewer people, who are able to do even more work than before, and the stress level is non-existent. Our satisfaction level is huge.”*

- Chuck Huggins

Manager of Technical and Clinical
Operations
St. Charles Health System





Self-assessment performance checklist

Are you reaping the benefits of true lab standardization? Take this self-assessment to find out.

1. How many reference ranges do you manage for critical assays across your healthcare system?

2. How many user interfaces do your staff need to master?

3. How many differing reagent packs do your chemistry analyzers require?

4. How many reagent prep steps are required for each of your systems?

5. How many analyzers do you have to maintain?

6. How many middleware IT solutions do you use?

7. Do you have different manufacturers for your pre-analytic and analytic instruments?

 Yes No

8. How many service contracts do you need?

9. Does your healthcare system utilize an accountable care model?

 Yes No

10. Does your healthcare system manage test results across your entire patient population?

 Yes No



NOTES

CHAPTER 2

THE ESSENTIAL GUIDE

TO ACHIEVING INDUSTRY-LEADING RELIABILITY



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Reliability of your analyzer and vendor are not just a convenience—they are critical to maximizing lab performance and maintaining standards of care. Yet while many labs seek these outcomes, they still overlook reliability. This sheds light on a vital question: what is the benefit of refining performance, only to need performance-robbing workarounds when the system is down?

THE THREAT OF AN UNRELIABLE ANALYZER

Unplanned downtime is one of the largest burdens a lab can face. Consider the case of the Medical Clinic of Houston, L.L.P. in Houston, Texas. They process 1.3 million tests annually and, like many U.S. healthcare facilities, face the challenge of increasing this volume without adding lab staff.

When their main chemistry analyzer—already near capacity—began breaking down, they urgently needed to explore alternatives. Making matters worse, intermittent downtime for the analyzer sometimes lasted 24 hours or longer. This had serious implications, which ultimately disadvantaged patients:

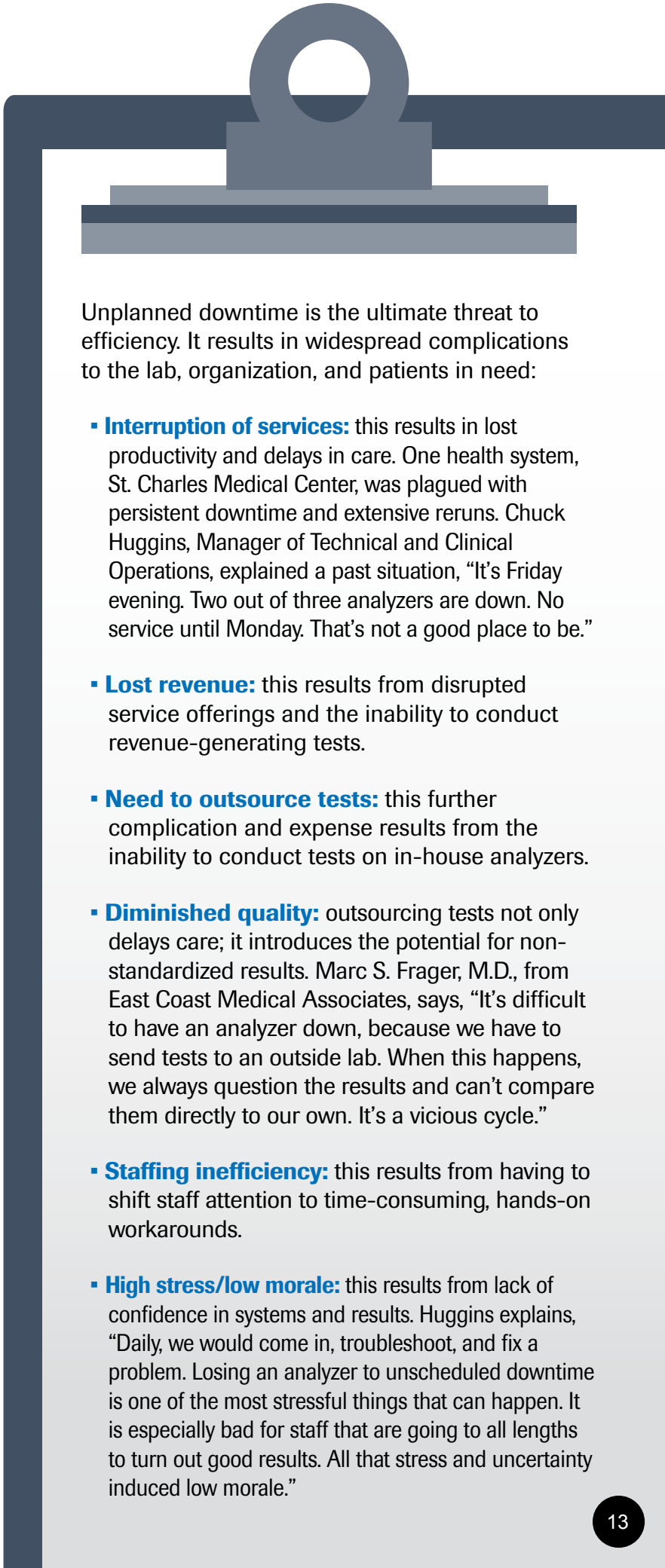
> Chemotherapy patients often had to **endure excessive wait times** for creatinine test results before beginning infusion therapy

> This often created the need to **significantly postpone care**, as chemotherapy infusions are scheduled weeks in advance

“Reliable performance is paramount for the lab because the clinic tries to be a one-stop shop for patient services, including diagnostic tests. Chemotherapy patients are scheduled for treatment weeks in advance, so if we can't provide test results while they wait, it causes many problems. When the chemistry analyzer would go down, everything came to a screeching halt. We needed reliable analyzer performance and we needed a back-up plan.”

- **Liza Muro Scillieri**

Lab Manager
Medical Clinic of Houston, L.L.P.









Unplanned downtime is the ultimate threat to efficiency. It results in widespread complications to the lab, organization, and patients in need:

- **Interruption of services:** this results in lost productivity and delays in care. One health system, St. Charles Medical Center, was plagued with persistent downtime and extensive reruns. Chuck Huggins, Manager of Technical and Clinical Operations, explained a past situation, “It’s Friday evening. Two out of three analyzers are down. No service until Monday. That’s not a good place to be.”
- **Lost revenue:** this results from disrupted service offerings and the inability to conduct revenue-generating tests.
- **Need to outsource tests:** this further complication and expense results from the inability to conduct tests on in-house analyzers.
- **Diminished quality:** outsourcing tests not only delays care; it introduces the potential for non-standardized results. Marc S. Frager, M.D., from East Coast Medical Associates, says, “It’s difficult to have an analyzer down, because we have to send tests to an outside lab. When this happens, we always question the results and can’t compare them directly to our own. It’s a vicious cycle.”
- **Staffing inefficiency:** this results from having to shift staff attention to time-consuming, hands-on workarounds.
- **High stress/low morale:** this results from lack of confidence in systems and results. Huggins explains, “Daily, we would come in, troubleshoot, and fix a problem. Losing an analyzer to unscheduled downtime is one of the most stressful things that can happen. It is especially bad for staff that are going to all lengths to turn out good results. All that stress and uncertainty induced low morale.”

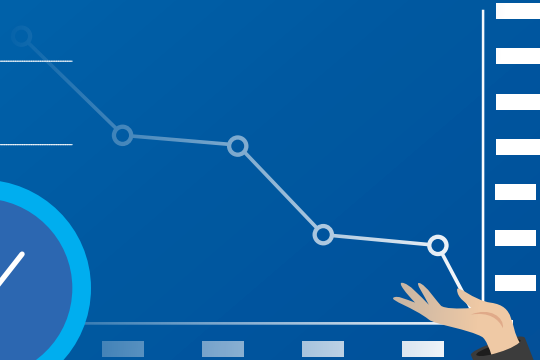


A foundation of reliability

For today's leading labs, reliability is the foundation for everything they do:

-  Accurate results
-  Rapid, predictable turnaround times
-  Cost, time, and workflow efficiency
-  Maximum revenue
-  High staff morale
-  Patient satisfaction

RELIABILITY



FOUR QUALITIES THAT REFLECT MAXIMUM RELIABILITY

A new analyzer is a major, long-term purchase. But it's not just about the product—it's about the vendor too. Make sure to investigate and obtain published data on these top criteria, for assurance that your purchase is the right one.

1

High mean time between failure (MTBF)

Considering the hazards of unplanned downtime, highest MTBF is a top priority for any lab. Minimizing failures and maximizing uptime is only possible when you have the system with the most mechanically sound architecture possible. This benefit helps you achieve standardized workflows and safeguard quality over time.

To help ensure maximum uptime, leading systems offer preventative maintenance. With just a few minutes per day, you can get ahead of potential issues and preserve top-level reliability. Systems that fail to enable proactive upkeep generally have issues that are more frequent, more costly, and more disruptive to the lab.

ROCHE ANALYZER RELIABILITY STATS

Repair visits per year		MTBF [†] in days
cobas [®] 4000 Analyzer Series	1.6	223
cobas [®] 6000 Analyzer Series	1.6	226
cobas [®] 8000 Analyzer Series	2.4	151

[†]MTBF: Mean time between failure is reported in days and represents the average time elapsed between two repair visits for a specific instrument. It is calculated out of all reported unscheduled repair activities for a running 12 months as of May 2015. Data on file at Roche: service records for a cobas 6000 analyzer series <501 | 601>, calculated by the average of the individual modules; global SIQ database, average MTBF for a cobas 8000 modular analyzer series <702 | 502 | 602>, calculated by the average of the individual modules.
Source: PRISMA Service Data: 12-month period ending May 31, 2015.

Through highly automated, preventative maintenance, Roche offers the industry's longest mean time between failures across the standardized portfolio of solutions.

“The routine daily maintenance automates cleaning with virtually no hands-on time from our staff. We know exactly what to expect, the process is repeatable, and the analyzer performance is consistent—like clockwork.”

- **Lonnie Bermel, MT (ASCP)**
Lab Supervisor of Chemistry and Hematology
UnityPoint Health



2

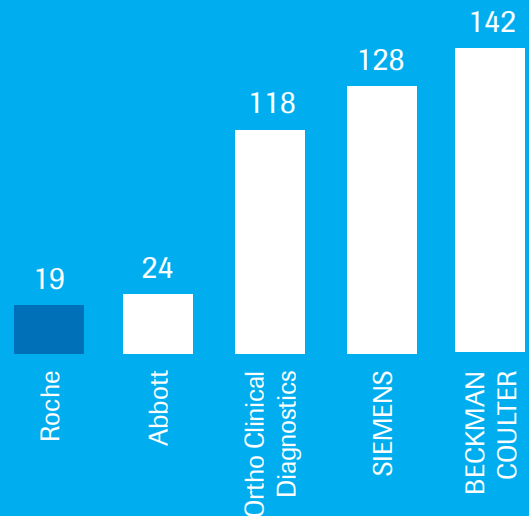
Few FDA recalls

System and assay FDA recalls are a clear sign of quality issues. These issues can reflect poor reliability of an analyzer—and the lab that purchased it. Furthermore, they can reflect a low level of vendor commitment to quality manufacturing.

Be sure to look for a vendor with the fewest system and assay recalls possible. This reflects a number of essential benefits.

- **System:** purposefully designed, and rigorously tested, for reliable performance
- **Assays:** proven for unwavering accuracy and reproducibility
- **Vendor:** fully invested in what is necessary to address primary lab needs

CLASS I AND II RECALLS: JANUARY 2010-MAY 2014



Source: FDA Class II recalls January 2010-May 2014. FDA.gov.

*“Similar to our other Roche systems, the **cobas e 411** analyzer has not had a single day of downtime due to performance issues during the first year of installation.”*

- Marc S. Frager, M.D.
Endocrinologist
East Coast Medical Associates

730 days, 1 unscheduled service call

Facility:

UnityPoint Health – St. Luke’s,
Sioux City, IA

Annual test volume:

400 - 500 specimens per day

Solution:

cobas 6000 analyzer series

*“Over our first two years with the **cobas**® 6000 system, we have only had one unscheduled downtime event. The reliability of our cobas analyzers give us control over the lab.”*

- Lonnie Bermel, MT (ASCP)

Lab Supervisor of Chemistry
and Hematology
UnityPoint Health



3

Large installation base

When labs consistently choose a single brand of analyzer more than any other, it suggests reliability on many levels:

- **Proven success:** the #1 choice for securing leadership into the future
- **Proven technology:** meticulously designed for unmatched performance
- **History of innovation:** tradition of excellence and industry leadership
- **Commitment to R&D:** ongoing development of forward-thinking solutions

Widespread loyalty indicates truth in quality and reliability. Furthermore, it means many other labs are available for advice, troubleshooting, and Q&A, should a problem occur. Would you trust your lab with anything less?

4

Leading service and support

Even when an analyzer offers maximum reliability, you want to ensure that it is backed by leading service and support. Look for these essential support features:

- **Robust support team:** cross-disciplinary specialists dedicated to keeping you operating at your best
- **Broad support services:** attend to lab needs of every type
- **Pre-installation support:** familiarize you with your support team, support services, and analyzer training
- **Priority service:** fast, professional support—whenever you need it
- **Continuous support:** ongoing performance review to identify key areas for refinement



Leading service—ASAP

“Roche understands the responsibilities of the lab and they’re on top of it. When I call a field service engineer, they’re here in less than 24 hours.”

- Maria Pereira
Lab Manager
East Coast Medical Associates

Leading service— after installation

“We meet with Roche on a regular basis to validate performance and identify opportunities to improve.”

- Chuck Huggins
Manager of Technical
and Clinical Operations
St. Charles Medical Center

Leading service— before installation

“We already knew the team members who were going to do the installation, the validation, and the training. It helped our whole lab team feel comfortable with the transition.”

- Liza Muro Scillieri
Lab Manager
Medical Clinic of Houston L.L.P.

To help maintain top performance, demand comprehensive support from your IVD vendor.


5 Essential Support Resources That Every IVD Vendor Should Provide

- **Lab process consultants:** Optimize your workflow using LEAN and Six Sigma methodologies
- **IT consultants:** Maximize the capabilities of your Middleware solution
- **Field service & certified project managers:** Ensure successful implementation, on-time go-live, and post-go-live support
- **Education & Training:** Provide a full suite of tools & services to help train your staff - in person or virtually
- **Peer Network:** Best practice sharing from your peers


QUALITIES OF LEADING SUPPORT




Market-leading customer service and follow-up



Majority of calls resolved remotely




Majority of calls answered live by a specialist



Calls answered in a timely fashion



Specialists have vast industry experience



Large body of support personnel

THE ULTIMATE ADVANTAGES OF RELIABILITY

Reliability is the foundation of efficiency, and results in widespread benefits to the lab and greater organization:



Continuity of services: this supports maximum productivity, in which lab staff can focus on adding value, not restoring their analyzers. Julie Thorpe quotes about her system, “Once preventative maintenance is completed I don’t have to do anything else for 24 hours. I can do almost two jobs at the same time.”



Maximum revenue: this results from optimizing staff utilization and billable services.



Maximum in-house testing: this results from not needing to outsource tests due to unplanned downtime.



Staffing efficiency: minimum hands-on maintenance results in minimal distraction from primary lab affairs. “Our system reduces workload on our techs, as chemistry reagents only need to be calibrated once per lot,” explains Judy Peetz, Chemistry Supervisor at Southeast Hospital System. “Previously, we had to calibrate some of our tests every time we ran them, or every three days. Because of this reliability, we’ve actually been able to reduce the number of people we have in chemistry.”



Maximum quality: in-house testing yields standardized results, predictable TAT, and faster speed of care. Christy Woodall, Laboratory Manager at Brooks County Hospital, states, “Reliability of the systems and the high result quality has given the lab the confidence to engage physicians to improve the overall quality of their services even further.”



High morale: upholding standard operating procedures minimizes stress throughout the lab. Dennis Hicks, Medical Technologist at St. Charles Medical Center states, “Before, I used to dread coming in because, usually, an instrument would be down. Now, it’s routine. You know it’s going to be a good day. Unpredictability was replaced with routine calm—and a brighter outlook.”

Overall, analyzer reliability keeps labs running at full force, and puts laboratorians in control to deliver greater service. By scheduling maintenance and downtime, it enables consistent quality and smooth workflow, without the disruption of unexpected failures.

SELF-ASSESSMENT PERFORMANCE CHECKLIST

Are you reaping the benefits of maximum analyzer and vendor reliability?

Take this self-assessment to find out.

11. What is the mean time between failure for each of your systems?

days

12. How many recalls have your systems had in the past five years?

13. What is your system’s U.S. installation base, compared to other systems?

14. On average, how much revenue do you lose per month due to unplanned downtime?

\$

15. Do you keep redundant systems for the event of unplanned downtime?

Yes No

16. Are you able to perform preventative maintenance on your systems?

Yes No

17. When you call for support service, how often do they arrive onsite within 24 hours?

All the time Sometimes Not usually Never

18. What percentage of service calls leave you “very satisfied”?

%

CHAPTER 3

THE ESSENTIAL GUIDE

TO ACHIEVING AN EXPANSION-READY LAB



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Medical Clinic of Houston



Labs of all sizes are working to grow and increase revenue, by expanding their test offering or bringing more testing in-house. However, they need to be ready to handle higher volumes, often within their same space, without paying for excessive, unused capacity.

KEY DRIVERS OF HIGHER TESTING VOLUMES:

Lab consolidations, mergers, and acquisitions

We are in the midst of the most significant period of provider consolidation in the last 30 years.

- **88% of provider executives** reported that they planned to pursue a merger or acquisition within the next 12 months¹
- **44% increase** in the number of mergers or partnerships between large hospitals in 2014 vs 2010¹

Keep reading to learn how today's leading labs are taking the smart approach to growth. This includes implementing a testing solution that offers both a broad menu and the ability to scale in incremental ways. If your lab is growing—or preparing for growth—you'll see how these essential benefits can help you approach expansion in the most practical way possible.

MODULARITY = FLEXIBILITY FOR GROWING LABS

Labs need cost- and space-efficient solutions to address changes in test volume and be prepared for expansion.

Many systems require you to add an entirely new line to achieve greater capacity, which can have several consequences:

- ↑ **more labor requirements (multiple user interfaces)**
- ↑ **added workflow steps**
- ↑ **more maintenance, QC, and calibrations**
- ↑ **increased footprint**

In contrast, a modular system gives labs flexibility to scale up or down to sustainably accommodate changing volume. By simply adding an additional module, it saves you from the burden of adding a second system, and the additional footprint that goes with it.

Consider the case of Florida Medical Clinic, a large multi-specialty practice located north of Tampa. It has more than 150 providers representing 26 specialty areas, and aims to provide “one-stop shopping” primary care for its patients.

Florida Medical Clinic has seen continuous growth during the last two decades, now processing more than one million tests per year. The lab had already been facing challenges in terms of space and capacity, but with its new level of volume, the need for a new testing solution became ever more clear.

Lab Administrator Gary Poekert and his team began their search for a system with modular capabilities, for the flexibility to accommodate growth. The team compared several analyzers, and chose one with many modular configurations, which allowed the lab to optimize its available space. Jim Stout, Lab Supervisor, said, “Having two chemistry modules has greatly expanded our capacity, and it’s enabled us to handle our growing general chemistry volume without any problems.”

EASILY MEET YOUR CHANGING WORKFLOW NEEDS

For mid-volume labs

The **cobas**[®] 6000 analyzer series is available in 7 unique modular configurations.

For high-volume labs

The **cobas**[®] 8000 modular analyzer series is available in 49 unique modular configurations.



The new modular platform also yielded a number of other improvements for the lab. “We’ve seen numerous gains in our workflow- and cost-efficiency,” Poekert said. “Our revenue and our profitability have also increased as a result.”

THE BENEFITS OF FLEXIBLE GROWTH

When looking to **grow**, modular solutions can offer many internal benefits to your lab, and external benefits to your health system.



Avoids the need to add an entire new line and separate workstations



Cost, space, and workflow efficiency



Minimized footprint



Increased revenue through expanded testing services

By prioritizing **modularity** in your system selection, you can ensure your lab is equipped to expand on many levels.

BROAD MENU = BROAD PATIENT CARE

Investing in a system that offers a broad and growing test menu helps ensure that your lab remains at the forefront of clinical utility.

One lab that epitomizes this is the laboratory at East Coast Medical Associates, an endocrinology practice in Boca Raton. It runs virtually all of its laboratory diagnostics in-house, with about 25,000 tests performed monthly. As the Boca Raton community is made up of a significant elderly population, there is a high demand for tests related to thyroid disease, parathyroid disease, and bone disease.

One of the lab’s challenges was that their analyzers were not equipped to run certain key tests for their patient population, including the osteocalcin test. Their strategic imperative was therefore to secure a more robust test menu. “Our endocrinologists were looking to add tests to help them with difficult diagnoses and patient management,” said Marc Frager, M.D., a co-owner of the practice, “and to enhance our level of patient care.”

“The amount of tests was so high in this small lab that we really needed a new analyzer to provide a greater menu capability.”

- **Maria Pereira**
Lab Manager
East Coast Medical Associates

The lab manager began searching for a solution to meet these needs, which turned out to be more of a challenge than she bargained for. “I looked all over for an immunoassay system that would run the osteocalcin test, but I only found one,” says Maria Pereira, a 20-year lab veteran. “Then I discovered that we could run several new tests on it as well. That made the decision easy.”

In addition to the osteocalcin test, the new system’s menu included Anti-TSHR, proBNP, progesterone, and PTH—all essential to their daily practice. With great confidence, East Coast Medical Associates quickly implemented the new system to multiply in-house testing possibilities.

Beyond enhancing patient care at the practice, the upgrade to a new platform had a positive effect on the bottom line—generating new revenue.

The **cobas**® family of analyzers has 166 different assays available, covering areas of thyroid function, cardiac, fertility/hormones, anemia, tumor markers, maternal care, critical care, infectious disease, bone markers, and others.

“Expanding our lab menu lets us do important tests we weren’t able to do before, and that has the dual benefit of helping us manage our difficult patients and contributing to our bottom line,” Frager said. “In some ways, it’s the best of both worlds.”

While a large menu is a key consideration, you’ll also want to confirm that your vendor has a history of assay innovation and a robust pipeline of future assay developments. This reflects a vendor’s dedication to menu expansion, which is vital for you to remain on the cutting edge of testing services.

THE BENEFITS OF BROADER PATIENT CARE

When looking to **elevate care delivery**, a broader menu can offer many internal benefits to your lab, and external benefits to your health system.



Greater
service offering



Enhanced
patient care



Increased
revenue



Greater
value

If your lab is looking to expand care, be sure to prioritize a **broad and growing menu** in your system selection.



We're also looking to expand our offering in the future. Roche is continually introducing new assays for this platform, so it should give us a lot of opportunities to do that."

- Gary Poekert
Lab Administrator
Florida Medical Clinic

**BROAD MENU =
CONSOLIDATION & REDUCED
SEND-OUTS**

Along with supporting enhanced patient care, switching to a system with a larger test menu allows for consolidation onto a single platform. This can yield numerous benefits in efficiency, workflow, and quality for your entire lab.

Take Medical Clinic of Houston, for example. It's one of the nation's largest private practice groups, with 38 physicians and test volumes rivaling those of full-service hospitals.

During a span of only a few years, the Medical Clinic of Houston's annual test volume increased from 900,000 to 1.3 million. This heightened demand strained the capacity of the clinic's analyzers, and its staff. Lab Manager Liza Muro Scillieri realized it was time for a new system.

After thorough research, she decided to switch to a new system with a much broader menu. This allowed for consolidation and a more streamlined workflow for the laboratory staff. "We've consolidated tests from three analyzers onto this platform," says Scillieri, "and we may eventually move tests from a fourth. That gives us efficiency-related cost savings, because one technologist can run more tests on a single platform."

These efficiency gains reduced manual labor on lab staff, enabling them to handle more testing in-house. Scillieri says, "Reducing the number of tests we send out enables us to get test results to physicians faster, which helps them provide better patient care; and it enhances our revenue in the process."

Furthermore, it provides standardized results, which enhances diagnostic accuracy and enables patients to be treated across all locations within the health system.



*The **cobas**® 6000 analyzer series has enabled us to expand our menu to provide greater value to our physicians."*

- Gary Poekert
Lab Administrator
Florida Medical Clinic



THE BENEFITS OF CONSOLIDATION & REDUCED SEND-OUTS

When looking to **elevate quality and efficiency**, a broader menu can offer many internal benefits to your lab, and external benefits to your health system.



Standardization



Consolidation



Streamlined
workflow



More
in-house testing



Greater
service offering



Enhanced
patient care



Increased
revenue



Greater
value

If your lab is looking to improve quality and reduce costs, a **broad menu** can be the factor for success.



ONE

SOLUTION TO SCALE SMART

If your lab is looking to grow, or is experiencing growth now, consider how a system with a broad menu and a modular configuration can meet your changing needs.

As seen in the above examples, this solution allows you to provide a greater service offering and manage growth, without adding excessive capacity and expenses. Scaling smart in this way will also support increased revenue now, and in the future—for any size lab. Take the smart approach to growth. You'll be glad you did.

BROAD MENU + MODULARITY =

- Greater consolidation
- Greater standardization
- Greater patient care
- Greater sources of revenue
- Greater growth opportunity
- Greater scalability
- Greater workflow
- Greater space- and cost-efficiency
- Greater value for your lab



SELF-ASSESSMENT PERFORMANCE CHECKLIST

Are you reaping the benefits of a broad menu and modularity? Take this self-assessment to find out.

19. To add more capacity, does your system require you to add a new line?

Yes No

20. If so, do you have the space to add one?

Yes No

21. Does your system offer testing modules to help you adapt to changing volume?

Yes No

22. What percentage of your tests are covered by your current assay menus?

%

23. What percentage of your tests do you have to outsource due to menu limitations?

%

24. What percentage of your tests do you have to outsource due to staff capacity limitations?

%

25. Which tests would be needed on a single platform to consolidate instruments?

26. What are your hospital/health system's growth goals?

27. Which further tests would help you achieve these goals?

CHAPTER 4

THE ESSENTIAL GUIDE

TO ACHIEVING FASTER TURNAROUND TIME



KEY CONTRIBUTORS

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Standards are being raised across health systems, as patient and physician satisfaction—and fast clinical decision-making—are becoming more prominent quality metrics. Part of what makes these measures so crucial is that a greater degree of hospital reimbursement is depending on them. To meet these stringent needs, labs of all types need to be ready to deliver. Hospital executives are even considering novel testing methods, like point-of-care testing, in an effort to maximize speed.



Turnaround times are very important for us because it gets the patients moving faster from the ED. If you're looking at cardiac specifically, it saves heart muscle.



- **Susana Savino**
System Administrative Director
Florida Hospital Healthcare System—Orlando

As a further challenge, labs regularly need to manage the most critical of tests—the STAT. Not only do STAT results need to be turned around faster than any other, but speed needs to be consistently delivered throughout times of peak volume.

If your lab has a frequent need for rapid results, you can't afford to settle. This involves having the fastest assay reaction times, and the throughput to deliver the maximum number of results at once. Anything less results in sub-optimal care—and value.

A surefire way to tackle these challenges is to upgrade to an analyzer that supports fast and predictable turnaround time (TAT) across all assays. Read on for concrete examples of how today's leading labs leveraged technologies to tackle their distinct TAT challenges—and how you can too.

“If I had to use three words to describe the cobas® 8000's STAT cardiac markers, I would have to say, accurate, reliable, quick.”

- Kathy McGinnis

Medical Technologist

Florida Hospital Healthcare System—Orlando

In 2011, Florida Hospital Orlando reevaluated their needs from a testing platform. They focused their attention on improving the TAT for three critical tests they performed daily: CK-MB, Troponin T, and NT-proBNP. To achieve their performance goals, they knew they would need to put two features at the top of their “must-haves” list:

- 1 Rapid STAT assay reaction time
- 2 High analytical throughput

After researching the options, they decided to replace all of their testing platforms with a new system that outperformed the competition on processing times for STAT assays, and on throughput.

GREATER SPEED WITHOUT COMPROMISING QUALITY

While labs are striving to provide rapid results for critical assays, they can't afford to compromise quality.

One lab that's setting a standard for fast, high-quality results is the Orlando location of the Florida Hospital Healthcare System, an 1100-bed acute care facility and core laboratory. It's one of the leaders in the country in cardiac testing and procedures, and the only facility in central Florida that performs heart transplants. Its laboratory handles 5100 specimens per day, amounting to millions of chemistry and immunoassay tests each year.

With the hospital's immense testing volume, and all of central Florida depending on it for cardiac care, the lab's management had set strict goals for turnaround times. "We want to have 90 percent of our results out within 45 minutes," said Susan White, Laboratory Chemistry Manager. "We want our average time to be below 30 minutes. I think it's a really hefty goal, but our leadership in cardiac care depends on it."



The **cobas**[®] 8000 modular analyzer series offers an industry-leading 9-minute reaction time for STAT assays—compared to 15 minutes or more with the competition—and the ability to perform up to 9800 tests per hour.

The greater speed and analytical throughput on the new system enabled the lab to report all cardiac STATs in less than 28 minutes. They're also achieving more than 95 percent of all routine requests in less than 45 minutes—exceeding their original goal.



Cardiac TAT Improvements at Florida Hospital Orlando



CK-MB –
37%
reduction in TAT



Troponin T –
33%
reduction in TAT



NT-proBNP –
37%
reduction in TAT



Overall average
reduction in TAT – **35%**



Sarah Province,

Assistant Laboratory Director, said,

“It’s a really great feeling knowing that we’re providing excellent service to our patients with timely results.”

Florida Hospital Orlando ultimately reinforced its reputation as a high-ranking cardiac care facility. Today, it continues providing top-notch, life-saving care to its 70,000 cardiac patients annually.

For labs that are looking to significantly reduce their TAT, without compromising quality, the right analyzer can make all the difference.

If you're looking to achieve these results, be sure to prioritize **STAT assay reaction time** and **throughput** in your system selection.

MANAGING A LARGE VOLUME WITH LIMITED RESOURCES

At Florida Hospital Kissimmee, the biggest challenge is managing a large capacity for its small size. It has only 15 beds in the ER, but sees more than 40,000 patients each year, and its laboratory does more than half a million tests annually.

“Unfortunately, at this campus, we do not have a cardiac cath lab,” says Pam Stieoff, ED Administrative Director. “So it’s imperative that we diagnose within a 30-minute window.”



Kissimmee Chest Pain Management Process



Elapsed time after a patient arrives:

- 5 minutes:** EKG and blood draw
- 8 minutes:** Blood sample to lab
- 10 minutes:** Lab processes sample
- 22 minutes:** Lab calls ER with critical results
- 25 minutes:** ER coordinates airlift to cardiac treatment site

With so little margin for error, Kissimmee needed to provide fast, predictable turnaround time. Like the Orlando branch, they realized that implementing a testing system with rapid STAT assay response times would be the best solution. And to ensure they could maintain a high TAT consistently, they placed great value on choosing a system that also provided high analytical throughput.

Soon after, they installed a new system, one they could be confident in for meeting their strict requirements.



When we're talking about issues with the heart or the brain, those are where the minutes really matter.

- **Ketan Pandya**
M.D., ED Medical Director
Florida Hospital Healthcare System—Kissimmee

With the new system, the lab decreased its cardiac TAT by an average of 25%, with a new 24-minute average TAT overall.



Cardiac TAT Improvements at Florida Hospital Kissimmee



CK-MB –
24⁰% reduction in TAT



Troponin T –
23⁰% reduction in TAT



NT-proBNP –
29⁰% reduction in TAT



Overall average reduction in TAT – **25⁰%**



Florida Hospital Kissimmee has made dramatic improvements in its ability to manage the large volume of testing and patients. Today, they maintain a strict, streamlined process for ER cardiac patients, and continually deliver great outcomes.

“This is not a small hospital test volume,” says Susan McKinney, Laboratory Administrative Director. “And we can do it on these analyzers without blinking.”

If your lab is striving to do more with less, don't overlook the value that **fast assay reaction times** and **high throughput** can bring.

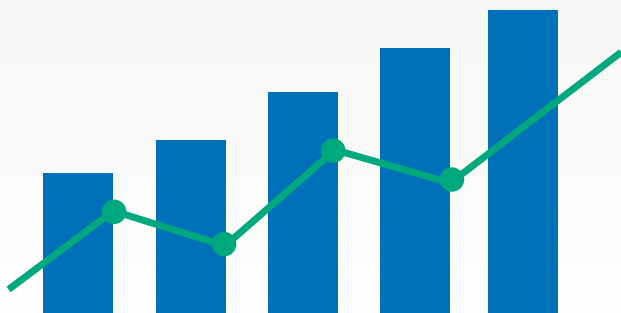
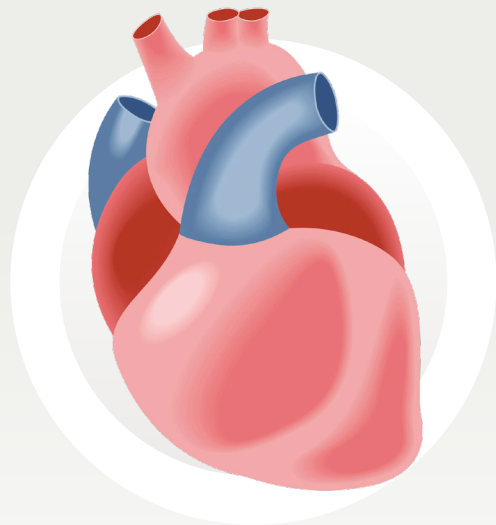


ADDRESSING A VOLUME INCREASE WITH BETTER TAT

In the early 1980s, leadership at Southeast Health in Missouri learned that the southeast region of the state reported the highest death rate due to cardiovascular-related diseases.

After this discovery, Southeast Health introduced the Heart Center in 1984. Now, cardiac care is one of their core service lines. The Heart Center has performed 6,700 surgeries since introduction, and serves 600,000 people.

With its newfound responsibility to deliver high quality care to an ever-increasing volume of patients, Southeast Health needed a new solution that would allow them to provide top-of-the-line TAT for ED cardiac STATs.



Like the other hospitals, they realized the answer was simple: find a testing platform that excelled in STAT assay response time and throughput.

After switching to the new system that fulfilled these needs, they reduced their cardiac TAT by 49%. “Our cardiac data have improved dramatically in regards to turnaround time,” says Lauren Thomas, Director of Laboratory Services. “Specifically in the emergency department, we went from 47 minutes to 24 minutes. That’s dramatic.”

“The 9-minute assay times are wonderful. We’ve seen a very big improvement in our turnaround times. We no longer get phone calls from surgery saying, ‘What’s taking so long?’”

- Judy Peetz
Chemistry Supervisor
Southeast Health

Southeast Health made a substantial improvement in the quality of its emergency care. Today, the hospital is emerging as a leading cardiac care center in the region.

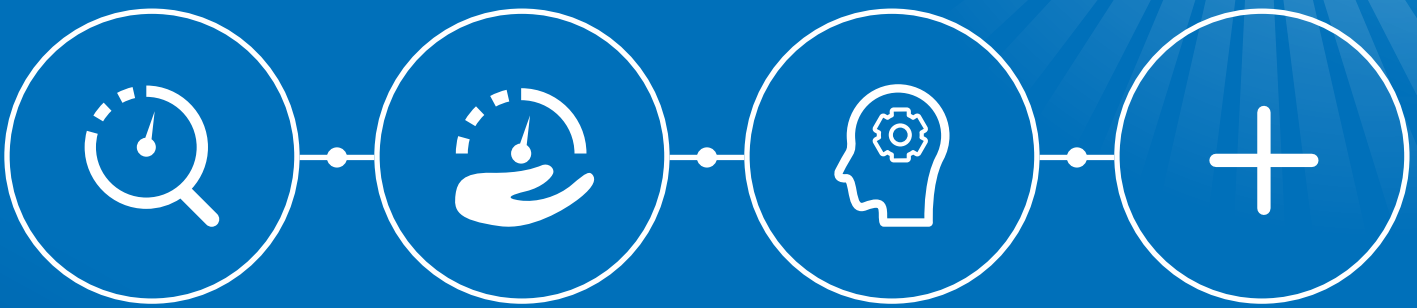
Labs that have high goals for quality treatment need to have equally high goals for TAT.

If your lab is looking to provide leading service, **STAT assay reaction time** and **throughput** should be leading criteria in your analyzer selection.

THE ADVANTAGE OF DELIVERING FASTER CARE

Thanks to the rapid STAT response times, high throughput, and the resulting increased turnaround time, these health systems have been able to provide better patient care, and elevate their clinical value to the communities they serve.

The ripple effect of rapid TAT



Analyzer performs **rapid processing at a high volume**

Laboratorians provide **more results—faster**

Physicians make **quicker critical decisions**

Patients and hospitals experience **better outcomes**

If your laboratory is feeling the pressure to meet the demand for rapid turnaround time, a new testing system may be all you need. Consider upgrading your testing system to one with industry-leading throughput and processing times to save your lab a few precious minutes, and the patients a whole lot more.

SELF-ASSESSMENT PERFORMANCE CHECKLIST

Are you reaping the benefits of fast turnaround time? Take this self-assessment to find out.

28. What is the average TAT for your most essential assays?

min

29. How predictable is the TAT for your most essential assays?

Very Somewhat Not really Not at all

30. Do your systems provide sufficiently fast TAT for STAT assays?

Yes No

31. Is your TAT sufficient to meet your organization's care goals?

Yes No

32. If any, at what testing volume does TAT begin to decline?

samples/hour

33. Are there key areas in which you are looking to improve TAT?



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