Abbott

LEVERAGE THE LAB FOR A HIGHER PERFORMING HEALTH SYSTEM

PATIENT CARE PATHWAYS

IT'S A CHALLENGING TIME FOR HEALTH SYSTEMS AND LABORATORIES.

Even before the pandemic, a sustained rise in chronic illnesses, increased consumer access to healthcare, and new testing methodologies were driving laboratories to be more agile in adjusting to new operational demands. Laboratories worldwide are struggling to meet staffing needs, while changes in reimbursement and shrinking budgets continue to drive health systems and laboratories to reduce costs. What this all adds up to is that health systems are being challenged to do more with less.

Through our work with laboratories and health systems around the world, Abbott has gained valuable insights about how to improve lab value – even in today's increasingly complex healthcare environment. Looking beyond the current healthcare challenges, growth opportunities exist.

Maximizing these opportunities begins with evolving the role of the laboratory beyond traditional performance measures such as throughput, turnaround time and variable cost per test. Forward-thinking health systems are taking a holistic view of the total value a laboratory can bring to the healthcare equation.

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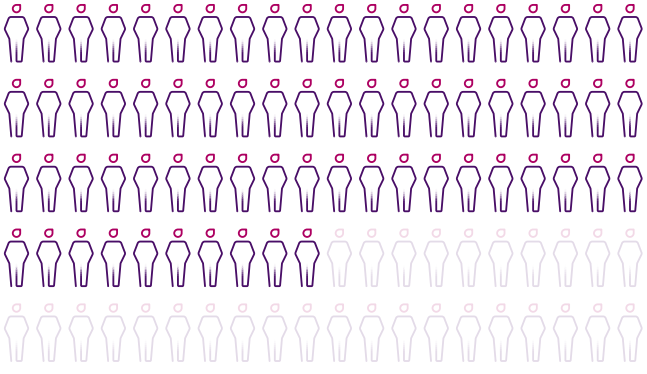
THE HEALTHCARE LANDSCAPE **IS EVOLVING**

- Greater information access
- Hospital consolidation
- Reimbursement cuts squeezing budgets
- Increasing patient volumes
- Staffing shortages
- New payor models

WHEN LEVERAGED CORRECTLY, THE CLINICAL LABORATORY CAN GREATLY ASSIST HEALTHCARE SYSTEMS IN ACHIEVING **OPERATIONAL EFFICIENCY** AND **INTEGRATED CLINICAL CARE EXCELLENCE.**

In fact, **70% of hospital executives** interviewed in a survey expressed their belief that the laboratory can have a significant impact on patient satisfaction.[1]



ABBOTT'S HOLISTIC APPROACH TO ACHIEVING MEASURABLY BETTER HEALTHCARE PERFORMANCE

OPERATIONAL EXCELLENCE & INTEGRATED CLINICAL CARE

Your roadmap to better health system performance starts here – with our whole picture perspective on maximizing health system performance.

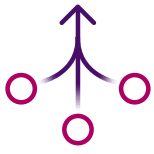
CORE COMPETENCIES

OPERATIONAL **EXCELLENCE**

The performance of your people, processes and technology to successfully deliver services.

- **Customer Centricity** – How well you know and serve your customers.
- **Quality Management** – Highest performance at lowest errors.
- **Performance Management** – Doing the right things and doing things right. Efficiency and effectiveness.
- **Network Optimization** – How efficiently you are leveraging the synergies and economies of scale across the system.

INTEGRATED **CLINICAL CARE**



The level of alignment and execution across your health system stakeholders to deliver improved clinical care outcomes.

- **Analytics Center** – How easy it is for you to access, share and utilize data for integrated care.
- **Execution of Integrated Care** – How effective you are at implementing an integrated approach.
- **Advice Center** – How effective you are at leveraging data and people to deliver actionable insights for decision making.
- **Population Health Management** – The level of integration across your stakeholders to provide preventative care and deliver improved population and financial outcomes.

FOUNDATIONAL **COMPETENCIES**

- **Sustainability**
  How well you use systems to ensure long-term sustainability and drive shareholder value.
- **Innovation**
  Your organization's appetite to implement change (leveraging people, processes and technology) to evolve and improve your performance.

ENHANCING LABORATORY PERFORMANCE AND VALUE

FOUR **KEY FOCUS** AREAS

Today there is more pressure on laboratories than ever before. Delivering on-time, accurate results to physicians is no longer enough to remain viable. Laboratories must not only contribute to positive patient outcomes at the lowest possible cost, but they must also deliver value above and beyond the laboratory's traditional scope of work. Through the exploration of four focus areas: **Patient Care Pathways, Early Disease Detection, Human Resources & Staffing and Cost Savings,** a strategic roadmap can be developed to achieve operational excellence and heighten the level of clinical care across your health system.

Patient Care Pathways

Early Disease Detection

Human Resources & Staffing

Cost Savings

PATIENT CARE PATHWAYS

Reducing overcrowding in the Emergency Department through novel diagnostic testing strategies that connect patients to the appropriate care.

RELEVANT DATA POINTS

- As the population of those 65 years and older continues to rise, expectations are that demand for ICU care will also increase.[2]
- According to a British Medical Association survey of physicians, **92% agree** that the NHS is "in a state of year-round crisis" when asked about core bed stock availability.[3]
- Multiple studies prior to the pandemic have demonstrated that total hospital length of stay (LOS) can be a full day longer for those boarded in the ED versus those placed in the inpatient unit.[4]
- As reported by several news outlets between 2019 and 2021, many hospitals reached or exceeded hospital bed capacity due to the COVID-19 pandemic. For example, in Brazil, ICU care wards treating patients reached levels **over 90% in 15 of 27 state capitals.**[5]

Why This Matters

Overcrowding in the ED causes problems for patients and staff, including:[6]

- **Increased** wait times, potentially leading to an increase in patient walkouts.
- **Increased** patient dissatisfaction, possibly leading to malpractice claims.
- **Increased** length of stay.
- **Increased** adverse events.
- **Increased** patient mortality.
- **Decreased** operational efficiency resulting in increased costs.

Patients who experienced greater than a 6 hour wait in the ED before transferring to the ICU had an overall **increased LOS (7 vs. 6 days), higher mortality rates (10.7% vs. 8.4%) and increased adverse events.**[5]

Historical studies have demonstrated that there was an association between some measures of overcrowding on **complication rates for patients presenting with acute coronary syndrome (ACS).**[7]

CASE STUDY OUTCOMES

There's increasing support for the idea that the laboratory can **help reduce overcrowding** in the hospital through the implementation of **novel patient pathways** and by **increasing laboratory efficiencies.**

NOVEL PATIENT PATHWAYS

Cardiovascular disease remains the leading cause of disease burden in the world. Non-traumatic chest pain is the second most frequent cause of emergency department visits in the United States, **yet only 5.5% were diagnosed as life threatening.**

Royal Wolverhampton National Health Service (NHS)

In 2018, the Royal Wolverhampton National Health Service (NHS) presented a case study that demonstrated their commitment to improving patient care by implementing an innovative integrated clinical care project to optimize pathways for patients with suspected Acute Coronary Syndrome (ACS). Specifically, low-risk patients were identified using clinical assessment and high-sensitive troponin values on arrival, enabling a discharge protocol that reduced the number of low-risk patients admitted unnecessarily while assuring patient safety. NHS deployed a **novel patient pathway** for those presenting with suspected ACS, which represented approximately 10% of ED visits. **The implementation of additional clinical assessment, coupled with high-sensitive troponin diagnostic testing, enabled the hospital to triage patients more efficiently.**

Success Factor: Sex-Specific Cut-Offs

The Biochemistry & Immunology Department at Kokilaben Dhirubhai Ambani Hospital & Medical Research Institute (KDAH) implemented new patient pathways for those with suspected acute myocardial infarction (AMI). Through their implementation, it was noted that using an upper reference limit (URL) of 26 ng/L may lead to under diagnosis for women.[9] Subsequently, the institution implemented sex-specific URLs, 16 ng/L for women and 34 ng/L for men.[9] The result of these changes identified an additional 14% of at risk women with potential AMI.[9]

The insights of this case study point to the importance of leveraging high-sensitive troponin assays that have sex-specific cut-offs. Per Table 1, the Abbott high-sensitive troponin assay for both Alinity i and ARCHITECT have unique URLs to support improved diagnosis of AMI.

Table 1

	Sex	99th percentile (ng/L)
hsTnI	Female	15.6
	Male	34.2
	Overall	26.2

"Implementation of our novel ACS pathway utilizing high sensitivity troponin has improved our confidence in safely discharging low-risk patients while admitting high-risk patients with minimal impact to the rate of cardiology consults. As a benefit of the improved sensitivity and specificity of hsTnI, I am more confident in the ability to risk stratify patients with ACS earlier in their pathway."
-Katherine Willmer, MD, The Royal Wolverhampton NHS Trust

CASE STUDY OUTCOMES

Royal Wolverhampton safely discharged over **25%** of low-risk patients without the need for serial measurements of cardiac troponin.[8]

9.6 hrs
reduced from 23 hours[8]
Total length of stay for patients from arrival to discharge

reduced by
37%[8]
Admissions from the ED to the hospital wards

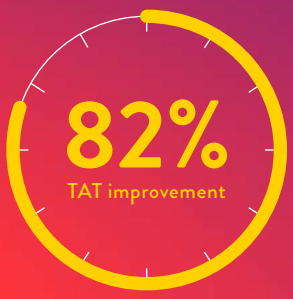
INCREASING LABORATORY EFFICIENCIES

In addition to the implementation of novel patient pathways, establishing key performance metrics can help improve patient care. One key metric to gauge laboratory performance is **test turnaround time (TAT).** While focus is often placed on the time to first result specification for assays, many variables can impact this metric in a routine laboratory setting, including:

- Sample Reception & Accessioning
- Pre-analytical Processing
- Sample Processing
- Result Verification Interpretation

By taking a personalized approach to understanding laboratory bottlenecks and opportunities for greater operational efficiency, Abbott Core Diagnostics experts can help optimize workflows to achieve best in class turnaround times. This capability is supported by a holistic portfolio that optimizes the process from the moment the test is ordered until the moment the result reaches the physician.

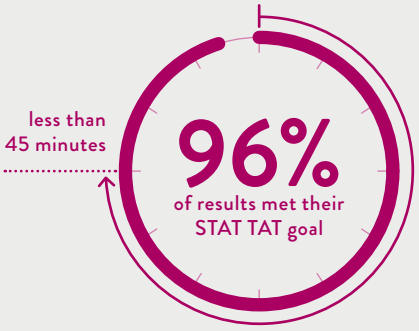
One example of improved test turnaround time comes from Lab Toledo, the leading laboratory in the Caribbean. With support from Abbott, the lab **realized significant workflow efficiencies through the automation of manual steps and result validation.**



As a result, Lab Toledo has achieved an 82% TAT improvement for chemistry and immunoassay testing.[10]

Another example of robust TAT improvement is from Saint Francis Hospital, the primary hub of a not-for-profit multi-hospital network with 95 clinics and urgent care centers across eastern Oklahoma.

Saint Francis evaluated turnaround time with Abbott's End to End Solution for 3 key STAT panels demonstrating that at least **96% of results met their STAT TAT goal of less than 45 minutes** from order to result.[11]



SAINT FRANCIS STAT TAT (TURNAROUND TIME)

Panel / Assay	Mean TAT (min)	Percent Complete in 45 minutes
Basal Metabolic Panel (Run on Alinity and ARCHITECT)	21	98%
Comprehensive Metabolic Panel (Run on Alinity and ARCHITECT)	24	97%
ARCHITECT STAT Troponin-I	28	96%

KEY TAKEAWAYS

1 The outcomes achieved at both Lab Toledo and Saint Francis enable physicians to treat patients with key diagnostic data with **greater expediency.**

2 A retrospective study found correlation between TAT and length of stay (LOS). A mere 1-minute reduction in TAT can **reduce LOS by 30 seconds.**[12] Based on these calculations, it can be estimated that as TAT improvements extend to between 5 and 15 minutes, it is possible to ultimately help free up beds to treat **upwards of 3% more patients.**[12]

3 By taking a personalized approach to understanding laboratory bottlenecks and opportunities for greater operational efficiency, Abbott can help **enhance workflows to support improved patient care.**

START HERE

Key Questions for Your Healthcare Partner

- How quickly and efficiently are we moving patients through the continuum of care?
- Where are we experiencing patient bottlenecks and what are we doing about these bottlenecks today?
- Are we using diagnostic insights to improve the way we triage patients?
- How are laboratory KPIs such as TAT impacting our patient care pathways?

FORMULATING YOUR **TRANSFORMATION PLAN**

Pulling It All Together

A multi-faceted approach is needed to address increasingly complex healthcare pressures.

Taking measures that address both operational excellence and integrated clinical care to enable health systems is the key to achieving an effective multi-faceted approach.

All efforts must be strategically designed in order to position health systems to improve the level of integrated clinical care to patients at lower costs.

This Is Where It Begins

Transformative change can start with one great conversation. To initiate that conversation, here are three overarching questions to explore internally and with your lab diagnostic partner:

- How do I develop a three-year lab strategy that ties into corporate metrics, such as patient satisfaction and lower readmission rates?
- What is the best way to facilitate collaboration with physicians on test results and complex cases to help deliver clinical insights for better outcomes?
- How do I aggregate data from the lab to generate insights and proactively share those insights across functions?

About Core Diagnostics at Abbott

At Abbott, we're committed to helping you connect the performance of your laboratory to the performance of your healthcare institution. We align people, processes and technology to create personalized solutions tailored to your unique challenges. Our resourceful advocates can help you achieve measurably better healthcare performance through harmonized systems and intelligent insights.

Connect with us at **corelaboratory.abbott** and on LinkedIn at **Abbott | Diagnostics**

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