

# FINDING VALUE IN THE HOSPITAL LAB

Strategies for  
optimizing lab  
utilization and  
expanding lab  
capabilities



MAYO CLINIC  
LABORATORIES



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Hospitals and health care systems have always played critical roles in the health and well-being of their communities and those who live there.

But they now operate under unprecedented conditions. Struggling to stay financially viable in the face of uncontrolled health care spending, they must also provide quality care for patients and attract and retain skilled providers and staff.

Hospital leadership teams are now accountable for safe, cost-effective care delivery as health care transitions from a fee-for-service model to one where reimbursement incorporates patient health outcomes and quality measures.

**A hospital's in-house lab can play a key role in achieving these goals.**

## THE CONTEMPORARY HEALTH CARE CHALLENGE

Containing costs  
while providing quality,  
accountable care





The stress on hospital leadership teams of managing today's intense financial pressures is both clear and great. According to the most recent "Top Issues Confronting Hospitals" survey run by the American College of Healthcare Executives (ACHE), financial challenges — including reducing operating costs — topped a list of hospital CEOs' most pressing concerns for a third consecutive year.<sup>1</sup>

It's no wonder; 2019 saw health care expenditures hit an all-time high of \$3.8T, with hospital expenditure accounting for nearly one-third. The Center for Medicare & Medicaid Services (CMS) projections see overall U.S. expenditures increasing by 5.4% every year through 2028, reaching an annual spend of \$6.2T.<sup>2</sup> With the Medicare Trust Fund predicted to become insolvent in 2026<sup>3</sup>, better ways are needed to identify and reduce waste.

## The assault of COVID-19

Even before the pandemic was on the horizon, the Congressional Budget Office projected that 40% to 50% of hospitals could have negative margins by 2025.<sup>4</sup> The COVID-19 pandemic has severely exacerbated the situation. A recent study concluded, "margins of America's hospitals will remain depressed throughout 2021, the percentage of hospitals with negative margins will likely increase, and the financial health of rural hospitals will be significantly affected."<sup>5</sup>

To some, the current and near-future financial situation is a perfect storm poised to cause hospitals to founder. Add the shift from a fee-for-service model to a value-based model, where hospitals are accountable for improving patient care efficiently and effectively all while reducing costs, and the future stability of hospitals and health care systems seems precarious indeed.



By the end of 2021,  
hospitals may see a  
drop in revenue between

**\$54 &  
\$122  
BILLION**

<sup>6</sup>





## The hospital lab: an underappreciated resource

Fortunately, most hospitals already have a resource at hand that can help them make progress toward their goals of achieving positive margins; reducing costs and financial waste; and delivering high-quality, accountable care. That source is their in-house lab.

While the lab may currently be regarded as a cost center — if considered at all — the potential of it becoming a value center is real and attainable. Optimizing lab utilization and strategically expanding lab capabilities into outreach programs are two key means of accomplishing this. Not only can these approaches contribute to hospitals achieving their financial goals, but they can also contribute to better and more efficient patient care, as well as improved provider engagement and satisfaction.




## OPTIMIZING THE LAB

# Costs and quality







One study showed that

**29%**

of hospital outpatients at one academic medical center had at least one lab test performed.<sup>7</sup>

More than

**20%**

of all inpatient testing is medically unnecessary.<sup>8,9,10</sup>

It will not come as a surprise to most that lab testing is used to develop and guide care for all inpatients and most emergency department patients. However, hospital outpatients also require lab services, with a recent study showing 29% of hospital outpatients at one academic medical center had at least one lab test performed.<sup>7</sup> These diagnostics deliver valuable information that guides critical aspects of patient care.

That's why appropriate lab utilization is so important to both controlling waste for health care systems and securing the best possible outcomes for patients. Inappropriate utilization includes overutilization, where providers order more tests (including redundant or incorrect tests) than are necessary for patient care, or underutilization, where providers fail to order the correct tests required for diagnosis and treatment.

Both forms of inappropriate lab use occur at concerning rates. Reviews estimate that more than 20% of all inpatient testing is medically unnecessary.<sup>8,9,10</sup>

## Risks and reasons

When diagnostics and other tests are not leveraged optimally, patient safety, well-being, and satisfaction are in jeopardy. Consequences can include incorrect, delayed, or missed diagnoses; inappropriate treatment; adverse events; prolonged hospital stays; unnecessary hospital-acquired anemia; and even increased mortality.<sup>10,11</sup>

The health system is then negatively affected not only by the financial waste of a large burden of unnecessary, repeat, or incorrect tests, but also by other costs associated with patient-related consequences. And there are additional, less obvious repercussions for the lab — like work overload, increased resource utilization, staffing stress, and low morale. Providers are also affected, with time wasted submitting unnecessary, repeat, or incorrect orders and reviewing results, and the need to course correct due to inaccurate or missed diagnoses, treatments, and follow-ups.<sup>10,12</sup>



Many factors contribute to inefficient, ineffective lab use. These include the ever-expanding roster and complexity of clinical tests (e.g., genetic tests for cancer diagnoses); unfamiliarity with the real costs of tests; diagnostic uncertainty; incorrectly interpreted results; and “defensive” medicine in the face of possible lawsuits. These are just some of the influences that come into play.





## Interventions and implementations

Well-defined and proven efforts can help bring inappropriate utilization under control.

1. Educational interventions can address gaps in knowledge and understanding at all staff levels.
2. Audits and feedback on provider ordering behaviors can help practitioners recognize the frequency of unnecessary repeat tests and the costs of tests, including expensive esoteric tests.
3. Restrictive ordering on electronic medical records can limit the number of tests practitioners can order in one day.

Interventions such as these have successfully reduced some inappropriate lab utilization in hospitals, especially when implemented concurrently.<sup>13</sup> There isn't strong evidence, however, of the longer-term sustainability and success of these approaches.<sup>9</sup> If hospitals wish to depend on these kinds of tactics for reducing inappropriate lab use, they will need a long-term strategic approach to planning, implementation, execution, and follow-up, perhaps with the support of a utilization-management expert.



**Laboratory diagnostic algorithms (LDAs)**, sometimes referred to as reflexive testing algorithms, have shown particular success in easing inappropriate lab use and cutting costs.<sup>10,11,14</sup> LDAs are decision-supporting pathways that help health care providers determine the most effective lab tests to run for any particular patient. Since LDAs incorporate factors like clinical symptoms, previous laboratory results, and suspected diagnoses, they allow providers to identify and order only those tests that will make a difference in the care of patients, rather than order all available tests.

Implementation of algorithms can be automated in the electronic health record or facilitated with the support of lab professionals. Experienced lab professionals, and especially an expert reference-lab partner with deep clinical experience, can develop and use LDAs to provide accurate diagnostic support when patients have complex diseases, rare conditions, or nonspecific symptoms. Lab professionals can then support providers by recommending appropriate tests and interpreting test results in light of factors such as clinical signs and symptoms.





A 2020 study found that

**10%-15%**

of women whose diagnostic tests showed gene variants that were incorrectly interpreted as associated with high risk of ovarian cancer had unnecessary surgical removal of an ovary.<sup>15</sup>

## Extension and expertise

Hospitals and labs don't have to shoulder the burden of establishing and running measures like laboratory diagnostic algorithms all alone.

Establishing the right kind of reference lab partnership — one that doesn't end up competing with a hospital's lab but that supplements and supports it — provides hospitals with an extension of lab capabilities and expertise, alongside utilization management guidance. The right partner, for example, will develop and share algorithms based on clinical experience, helping a hospital's lab guide providers toward ordering the right tests, for the right patients, at the right time. In particular, such a partner can take on a lab's more difficult esoteric tests and provide timely, accurate results — with interpretations that optimize care decisions. This way, hospital practitioners can be supported in establishing accurate diagnoses and determining the right treatments and therapies, thereby setting patients on the correct care path the first time.



As part of a study to reduce diagnostic financial waste related to critical but high-cost tests, the University of Louisville Hospital developed an algorithm drawing on one created by Mayo Clinic physicians in Rochester, Minnesota. The UofL team then developed an improved approach to diagnostic stewardship. Results included a **33% true positive rate increase**, and a **50% reduction** in the number of tests ordered.<sup>16</sup>



## LEVERAGING THE LAB

# Increasing revenue



While optimizing lab utilization is an effective way to mitigate wasteful spending while delivering value-based care, hospitals likely need to employ other measures to strengthen financial stability and ward off the aforementioned grim outlook for hospital margins.

In a time when hospitals have been hit hard by uncontrollable forces like COVID-19, the in-house lab can do more than efficiently service the provider population that it has always serviced. It can become an important and steady revenue center — and it can do this in a few different ways. First, it can be the lab of choice for providers associated with the hospital but who are sending their lab tests to commercial labs. Second, it can develop competencies to be an outreach lab, providing expanded and responsive services, expertise, and leadership within the community.





## Strengthening provider utilization

Hospital executives and lab leadership may not be aware of revenue that is almost literally slipping through their fingers. Recently purchased primary care practices and other physician practices, alongside providers who are already connected to a hospital or hospital system, may very well be engaging large national commercial labs instead of sending lab test orders to the hospital lab. This can mean lost revenue for you — revenue that you can capture and take back.

Commercial labs are establishing themselves as competitors to hospital labs, taking away business that is more appropriately kept within the local community. But not all of the practices that have connections to hospitals — whether they are new practices or associated providers who work outside of a hospital's halls — understand that the hospital lab is available to them and may service them and their patients better than a commercial lab can.

The opportunity for hospitals is to connect with the providers they employ and who practice in the community and to redirect their lab test orders to the hospital lab.



## Developing outreach capabilities

The second source of revenue lies in establishing a lab outreach program. In this approach, a hospital lab not only draws in the tests of providers connected to that hospital, but also offers its lab services to other hospitals and providers within the community.

What makes a hospital lab appealing as a reference lab for the community? Reducing redundant testing is one important advantage. Furthermore, in addition to having a broad test menu, long-term success depends on differentiated but consistent quality service, convenience for patients, and — most importantly — accurate results that are returned quickly. Local hospitals acting as community-based reference labs can also provide responsive and consultative customer service.<sup>17</sup> And this can be a boon to both a hospital's internal customers, as well as customers in the community.

Evolving a hospital lab into an outreach lab may seem like a daunting enterprise, but the potential rewards are great. A National Hospital/Health System Laboratory and Outreach survey found that the annual net revenue of hospital outreach programs can reach \$25M. Furthermore, the survey showed that hospital outreach labs were three to four times more profitable than national commercial labs.<sup>18</sup>



Cayuga Medical Center in upstate New York was at a turning point: to sell its hospital lab or invest in transforming it into an outreach lab. Partnering with Mayo Clinic Laboratories to assess its outreach capabilities and the local market, leadership chose to turn the lab into a value center and to establish it as a critical component in patient service across the region. In the process, it generated enough revenue to allow for the hiring of over 50 individuals and now successfully counteracts the influence of national commercial labs in their local community.





## Partnering for success

Once again, hospital labs don't need to take on such efforts without support. A reputable reference lab partner — one who, unlike commercial labs, will not compete with a hospital lab — can provide expert guidance and facilitate revenue-building agendas while keeping costs down. This includes both helping to direct lab tests from employed providers into the hospital lab and also developing and running a successful outreach program.

Establishing a lab outreach program can have special challenges. But the experience and resources of the right lab partner can help hospital labs become go-to testing centers in their communities. Support can include:

1. Helping control costs and expand testing capabilities
2. Developing new and market-specific tests
3. Streamlining and expanding test catalogs
4. Bringing more routine tests from the community in-house
5. Meeting patient needs for more complex and specialty testing
6. Establishing KPIs to demonstrate success
7. Expanding into adjacent local markets to shape population health
8. Sharing expertise to facilitate more accurate diagnoses and analyses

A reference lab partner with sophisticated capabilities and integrated clinical connections can help grow and sustain a hospital lab's ability to gain a significant edge over market competitors.

## Conclusion

**M**ost hospitals have within their own walls a potential source of financial waste reduction and revenue generation. The hospital lab, with effective utilization management, can shed the label “cost center” to become financially and operatively efficient while contributing to value-based patient care in meaningful ways.

In fact, given the role that lab tests play in diagnostic, treatment, and post-treatment decisions, the work of the hospital lab is critical to the success of the shift from a pay-for-service care model to a value-based system.<sup>19</sup>

Hospitals can do more with their labs than establishing cost-control measures. They can go on to develop profit centers with lab outreach programs, generating revenue by keeping costs down and adding test volume. When developed strategically — especially with the assistance of an experienced and expert reference lab partner — such programs deliver high-quality local care, keeping the health care dollar within the community and establishing the hospital lab as an indispensable regional leader.

The effect of successful, productive hospital labs is far reaching. Well-utilized labs can support more accurate and timely diagnoses for patients, helping to avoid the many harms that can result from overutilization and underutilization of lab testing. When patients are set on the right care path early and with minimal uncertainty, everyone benefits.

Providers, too, can benefit from well-utilized hospital lab programs, with access to ordering guidance, supportive test interpretation, and other efficiency measures. Provider benefits only grow when a hospital lab is reinforced by a lab partner that truly understands hospitals and has the resources to add significant clinical value. In this case, a hospital’s providers gain expert peer-to-peer collaboration and consultation, the ability to stay abreast of trends and diagnostic breakthroughs, and the resources needed to offer patients first-in-market access to critical diagnostic and treatment tests.





Mayo Clinic Laboratories is a global reference laboratory that helps hospitals and health care systems worldwide advance patient care, strengthen their practice, and broaden access to specialized testing.

As an arm of Mayo Clinic, Mayo Clinic Laboratories understands the challenges and opportunities facing hospitals and health care systems like no other reference lab.

Through partnerships with clinicians at Mayo Clinic and health care providers around the world, Mayo Clinic Laboratories is able to offer the most sophisticated test catalog in the world. Its algorithmic approach, developed by Mayo Clinic laboratory experts and physicians, ensures that the organizations that it supports receive the right tests for the right patients at the right time.



Mayo Clinic Laboratories subject matter experts also provide on-site guidance, consultative services, and lab utilization-management tools. A partnership with Mayo Clinic Laboratories means hospital labs get world-class support, strategic outreach development, access to esoteric and specialized testing, and much more.

**Discover more about Mayo Clinic Laboratories  
at [mayocliniclabs.com/about-us](https://mayocliniclabs.com/about-us)**

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