

EXECUTIVE INSIGHTS

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OPPORTUNITIES TO CLOSE GAPS IN PATIENT CARE THROUGH LABORATORY STEWARDSHIP

Gaining insights from diagnostics to improve care quality and lower costs systemwide

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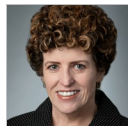
COLLEGE of AMERICAN PATHOLOGISTS

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As many as 70% of care-based decisions are informed by laboratory testing, which represents 4% to 5% of overall hospital costs. Essential for health systems, laboratory stewardship seeks to improve the health of patient populations and the patient experience while reducing care variation; streamline clinical decision support to improve provider satisfaction; and lower health care costs by avoiding over- and under-testing. The COVID-19 pandemic highlighted laboratory services-underuse opportunities in chronic-disease management and in communities facing inequities of care. Trends in the hospital field, such as reimbursement pressures, staffing shortages, settings of care and data/information technology challenges, all affect laboratory and health care costs. Stewardship empowers leaders and supports creating appropriate, equitable and efficient care. This executive dialogue explores the key elements in a successful laboratory stewardship program that promote evidence-based care to improve quality metrics and financial performance.

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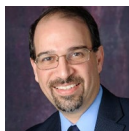
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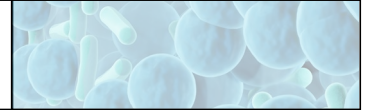


MODERATOR Bob Kehoe

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AMERICAN HOSPITAL ASSOCIATION | CHICAGO

8 ways to advance the effectiveness of your laboratory stewardship program



- 1 Set goals that are effective, efficient, timely and patient-centered.** Develop a good clinical oversight function to optimize care or reduce the cost of care. Start with small projects with the best data for which you can show a change and demonstrate value.
- 2 Evaluate opportunities in reference lab spend,** laboratory formularies, and review of order sets to eliminate redundancies and unnecessary tests, reducing readmissions and misdiagnoses of bloodstream infections, identifying patients who have chronic kidney disease sooner and other population health initiatives.
- 3 Understand the governance in your hospital or health system.** To optimize care or reduce the cost of care, you need a culture of change in the hospital to standardize laboratory operations.
- 4 Pathologist-led laboratory stewardship** matches care to science and avoids the overuse of ineffective care and underuse of effective care. Create new value for health care ecosystems through enhanced clinical decision support and appropriate test utilization.
- 5 Cultivate physician champions.** Enlist executive leader sponsorship and influential medical leaders who have credibility with the medical staff to advocate for buy-in. Use ad hoc members as needed for specialties.
- 6 Identify staff who work with day-to-day processes to generate ideas for process improvement.** Seek people who understand where opportunities exist to improve your hospital laboratory operations, often laboratory directors and managers.
- 7 Build a multidisciplinary team that includes finance and information technology.** Review plans with finance for the positive or negative impact on the return on investment. Build a relationship with those in information technology and informatics to modify orders sets and physician preferences in the electronic health record, and develop analytics and scorecards.
- 8 Analyze the data and the outcomes.** After analyzing your data, identify opportunities to optimize utilization and improve outcomes. Use real-time laboratory utilization insights to support at-scale optimization of laboratory testing.

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MODERATOR (*Bob Kehoe, American Hospital Association*): **How did you create your laboratory stewardship program and what are its goals?**

BRIAN JACKSON (*ARUP Laboratories*): Nearly 20 years ago, as a faculty member at the University of Utah and ARUP, I became involved in an early-stage analytics program called ATOP (Analysis of Test Ordering Patterns). I reviewed laboratory orders from various hospitals to look for obsolete tests, disproportionately high-volume orders from some hospitals compared with others, and other anomalies. ATOP is different from a hospital-level stewardship program in that we provided guidance to other laboratories so that they could provide feedback to their physicians. Over the years, we grew these advisory services.

There was an untapped need to provide more support for clinicians. With so many laboratory tests available, the formats in which doctors order those tests don't always provide clarity, and it hasn't been a priority of the electronic health record (EHR) companies. We saw anomalies that were either educational opportunities or maybe administrative errors.

MODERATOR: When you work with outside hospitals, how receptive are they to making changes or adapting to a stewardship program?

JACKSON: Depending on the extent to which the hospitals engaged with their medical staffs, we saw some hospitals develop high-functioning programs.

MOHIEDEAN "MOHI" GHOFrani (*PeaceHealth*): Our health system in the Pacific Northwest comprises 10 hospitals in Oregon, Washington and Alaska. Whether large or small, each has its own laboratory. For many years, we were thinking of laboratory stewardship in our sites, but we were never able to get the program running.

In 2017, we partnered with Quest Diagnostics for our laboratory services, and worked with Donna [Cooper] who has extensive experience in laboratory stewardship. We were on the path to standardizing our laboratories across the entire system, and this was an opportune moment to invigorate our laboratory stewardship program. Fortunately, we had executive leader sponsorship and support, which was important in getting this off the ground and running successfully. For three years now, we have held laboratory stewardship committee meetings. In this short time, we've been able to make a lot of progress. In any laboratory where there isn't a defined laboratory stewardship program, there is going to be opportunity to optimize utilization. We needed the structure to look at the data and identify opportunities.

ANDREW FLETCHER (*Eutilogic Consulting*): As a practicing pathologist in a large pathology group, we were being paid medical director fees by the health care system to direct the laboratories. We needed to demonstrate our value as medical directors and started the laboratory stewardship committee. My first goal was to save money. We created a multidisciplinary laboratory stewardship committee, led by a pathologist, but driven by other members of the medical staff, because pathologists don't order the tests. We also needed buy-in from the medical staff.

First, we looked at reference laboratory spend because it was the most visible expense. We focused on why we were sending laboratory tests to nonprimary reference labs and who were ordering tests that weren't necessary for inpatients. We reduced expenses quickly. Next, we looked at inpatient use: Why are we ordering a daily CBC or a basic metabolic panel for every patient? From there, we launched into order sets and physician preferences. Clinicians were having laboratory tests built for different reasons in order sets.

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Laboratory stewardship started from the simple approach of saving money to how we can contribute to the goals of the health care system and contribute to a much bigger picture. For example, with the prospective payment system, how could we start contributing to lower readmissions?

MODERATOR: Donna, what's the role of Quest Diagnostics in helping to further and support these types of programs?

DONNA COOPER (*Quest Diagnostics*): When I was at Cleveland Clinic, I sat on its laboratory stewardship committee for five years, and saw the inner workings of laboratory stewardship in a hospital setting and what was needed to create change. Ultimately, whether you want to optimize care or reduce the cost of care, you must have a culture of change in the hospital.

When I came to Quest Diagnostics, my responsibility was to help our managed labs establish laboratory stewardship committees. What you need for success is consistent buy-in from influential medical leaders who are respected within your system and are brave enough to take a stand and say, 'No more CK-MB with your troponin,' or whatever the issue is.

You need influencers and you need informers. You need people who understand where the opportunities for improvement exist in your hospital. Often, informers have previously tried to bring up an issue, but it wasn't the right setting in which to bring it up.

Most important are the doers — the people who know how to create the interventions in the EHR and develop a good communication plan with clinicians in each part of the health system and who

can drive change through their respective areas, whether it's nursing or pharmacy, etc.

It's important to meet regularly. Most teams choose to meet monthly, but the most productive teams meet twice a month.

MODERATOR: Who should be involved as representatives in this effort and what skills or attributes do they need most?

COOPER: I usually look for the influencers first because even if we have doers, we can't create change without influencers. I like to build a steering committee of three people. At PeaceHealth, they suggested some chief medical information officers (CMIOs), chief medical officers, and CEOs. The influencers were distributed throughout the system, rather than concentrated in one hospital or one network within the system.

The informers can be laboratory administrators, directors or supervisors. A key contributor is a supervisor who's extremely observant and can formulate plans for making changes in the system. A representative from the laboratory also must be involved and the director of the laboratory often chairs the committee.

It's essential to have access to someone from the finance department who can review your plans and evaluate whether there's a positive or negative impact on the return on investment (ROI) or unintended downstream effects.

For the EHR, it's helpful to have both a leader like a CMIO and an analyst who knows how to make changes in the EHR — how to build a hard stop and a soft stop, how to modify order sets and

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PeaceHealth

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how to set up physician preferences. For example, right now, there's a shortage of a particular reagent, and we are looking at how we can rebuild a common test minus one element without having it become an issue for providers, patients or information technology (IT). That conversation relies on IT and laboratory stewardship having a close working relationship.

MODERATOR: From the multidisciplinary team angle, what role does it play in proposing and implementing best practices?

FLETCHER: We had a core group of interested physicians along with ad hoc members who were consulted as needed. Also, both a financial analyst and an informatics expert participated. We put an ROI on projects to show what we were doing. And then the financial analyst would vet it and confirm whether the savings were real. Choosing which projects to start was based on available data. We wanted to make sure we had solid data before we acted on anything, because getting physicians to change behavior depends on data.

As physicians, we are trained to tear apart everything. We want hard, solid, reliable data to convince us to change practice patterns. When we chose a project, we didn't necessarily choose the one that offered the greatest potential savings; often, it was the one with data that showed we could make a meaningful change.

We started with smaller challenges that were achievable. Once we were able to demonstrate value, we received more buy-in from informatics and other departments willing to take on bigger challenges.

GHOFRANI: When you create your committee, it's important to bring in people who not only are knowledgeable about the subject matter, but who are respected leaders within the hospital system. As a pathologist asking for changes in clinical

practice, I wouldn't have moved forward without the support and credibility of the clinician champions behind me.

JACKSON: I've seen people from different backgrounds be successful in leadership roles in laboratory stewardship committees, but it always comes down to people who have both the personal drive and the organizational skills to make things happen. Those who are successful are well-connected across departmental lines and have good relationships with different departments; ultimately, I think personal characteristics and leadership skills are important. Hospitals are complex places with many committees and lines of authority and reporting. I've seen laboratory stewardship get bogged down to a point where it's unclear how it overlaps with other groups. It takes a strong leader to be able to provide clarity.

MODERATOR: What are some specific examples of improvement initiatives your organization has considered or implemented?

FLETCHER: One thing we tackled was reference testing. We decided to limit where physicians can send tests. I'm referring to a laboratory formula like those that have been around for years in pharmacy.

On the inpatient side, there's a list of tests you can order and the laboratory to which you should send it. After looking at how we populated the order entry list in the EHR, we went from about 1,100 clickable orders for laboratory tests, reference testing specifically, down to about 196. The physicians appreciated it because it made their work easier. Instead of having to look through dozens or hundreds of tests that they're not interested in, now they receive the most pertinent test.

We also were able to quantify the impact on reference-test spending. On the inpatient side, we saw about a 31% decrease on reference-test spend-

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ing and increased physician satisfaction. Physician burnout is real. Because our workflow was simplified, it was a win-win for both physicians and the laboratory. On the health system side, the lower laboratory spend decreased avoidable costs on inpatient Diagnosis-related Groups.

GHOFRANI: One of our projects is cleaning up the test menu, which takes a while because of the sheer number of laboratory tests. On the other end of the spectrum, it addresses specific tests. For example, procalcitonin (PCT) was one of the earliest tests we tackled and removed from our menu options. We did a lot of pre-work. When you consider making a change like this, before you make the decision and go live, discuss it with the different clinical groups and get buy-in. If the stakeholders feel that they have been involved in the decision, especially when you have good data to back it up, it makes it a lot easier.

For example, eliminating PCT, a test of questionable value with a high cost to the patient, was a win in terms of the quality of care we're providing to our patients and the costs being incurred by the health system.

On other interventions such as reducing duplicative testing, our hypothesis was that often a hemoglobin A1C is being ordered too close to the previous one, because the clinician wasn't aware that it had already been performed. When a provider orders a test that should not be ordered within a certain interval, we created an EHR prompt to show the previous result or show that the test had already been ordered and is in process.

MODERATOR: When do you bring in administrative leaders as part of the process?

GHOFRANI: We don't consider ourselves a deci-

sion-making body. We are an advisory body, and it may take months or several laboratory stewardship meetings before we decide what the appropriate intervention should be. When we come to a decision, especially if we think it's going to meet with resistance, that's when we bring in our executive leaders for their approval.

MODERATOR: How are data being used to prioritize, support and measure the effectiveness of initiatives like these and what successes have you seen?

JACKSON: One way to screen orders for opportunities is to look at comparative data. With laboratory tests, we flag both institutions and individual clinicians who order disproportionately high volumes of any test compared with those of their peers. That's a crude screening step. It doesn't mean that they're doing anything wrong, but it reveals opportunities to investigate further. An internal discussion includes asking: What is the person's specialty? Should we pass this on to the chair of that department? Can we call to find out a little more? It's the start of an important conversation to engage clinicians around stewardship.

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— Andrew Fletcher —
Eutilogic Consulting

COOPER: We use data in a couple different ways. We have a steady flow of near real-time data from some of our customers into a system that will both analyze and allow us to visualize the data. We use that platform to benchmark clinicians against one another. The clinicians are narrowed into small groups of clinicians with similar practices — they're probably practicing in the same hospital, in the same department seeing similar patients. That helps us to identify outliers.

We also are developing a larger opportunity to

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benchmark across hospitals. Eventually, we want to increase that number of hospitals to build benchmarks around the level of disease states.

We have a scorecard. We're using our laboratory stewardship platform to create some key performance indicators in the hospital. Our dashboard allows us to see if testing in the emergency department (ED) is being returned at the required time.

One of the best uses of data is communication with your leaders so they have an understanding in the moment of how test volumes are changing or why they might be changing through the pandemic. This helped them see how disproportionate testing was compared against their routine testing and understand that their routine testing was dropping off, thus showing that the patient population changed during the worst of the pandemic. The most powerful way of using data for laboratory stewardship is related to population health — identifying patterns that are unexpected and proactively address health outcomes.

JACKSON: Andrew and I co-authored a paper a couple years ago on troponin retest intervals across a number of hospitals. It was interesting to see the range of patterns, and one that jumped out was that even within the same hospital we often saw different troponin-ordering patterns in different parts of that hospital. With a troponin, you order an initial troponin test for a chest pain workup; then there should be a protocol in place to collect two subsequent specimens at defined intervals afterward.

We saw that EDs tended to have relatively tight timing patterns, suggesting that they were protocolized, which is what you'd expect for an ED. However, on the inpatient units, the same hospitals had much longer and variable intervals, often 12 hours between the first and the second troponin test. It suggested that inpatient wards were

not quite as tightly protocolized as their own hospital's EDs.

FLETCHER: It's about standardizing best practice, not simply to standardize the interval, but to standardize to the best clinical outcome for patients. With laboratory medicine, it's a surrogate marker for a much bigger picture: How do we standardize the best practice so we positively impact the delivery of health care?

COOPER: I did a study on regular troponin testing, not high-sensitivity troponin testing, in a hospital. You would expect that at most a patient would be given three troponin tests over a 24-hour period. We were finding numerous patients who received six or more troponin tests in that 24-hour period. We found that troponin ordering came down to where the patient was and who placed the order. If patients stayed in the ED for the entire care journey, they received three troponin tests and were either admitted or discharged. If they were transferred to observation, it was common for observation staff to reorder another set of three troponin tests, but the patient may not remain in observation long enough to be given all three. If the patient then was transferred to a ward, sometimes another three tests were ordered. The problem was not having appropriate order sets for the patient environment. There were no hard stops to stop the repetition of troponin testing. This was one of the Lab Stewardship Committee's first projects. Several members came in and asked, 'What are we doing with troponin tests?' It was easy to track down that what they were doing was unusual and we were able to make some changes. Troponin testing is a great place to start if you want to standardize care and develop best practices.

MODERATOR: What results and outcomes are you seeing from your laboratory stewardship program and how do they demonstrate value?

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GHOFRANI: One project that we're implementing is using an initial specimen diversion device to reduce blood culture contamination. Reducing false-positive blood culture results provides patients with a higher standard of care by reducing misdiagnoses of bloodstream infections, including sepsis, reducing unnecessary and prolonged broad-spectrum antibiotic therapy, and shortening the length of hospital stay. An analysis of benefits was enough to convince our leaders that it's worth the cost. Dropping our blood culture contamination rate from 3% to 1% or less is a huge win for both the patients and the health system. That's just one example of how laboratory stewardship interventions can improve care for patients and savings for the health system.

FLETCHER: Laboratory stewardship is how we come together as a team to improve patient care. Laboratory medicine touches 70% to 80% of health care. Nobody comes to the hospital without getting a laboratory test. The objective data are important for utilization and medical necessity review.

COOPER: In general, when we talk about laboratory stewardship, we talk about overutilization of testing, and our goal is to reduce duplicate tests or choose tests where there are better options. But recently, we've started talking about underutilization of testing, specifically in the case of chronic kidney disease. We are working with the committees to introduce testing and screening that would help us identify patients who have chronic kidney disease sooner in the disease state, potentially allowing for lower downstream costs of care. That's hard to quantify. We can't quantify

things that didn't happen. But, in the health care field, we understand that keeping patients individually and collectively from going to end-stage renal disease is a desirable outcome. Laboratory stewardship allows us to identify opportunities where we can improve health outcomes and reduce downstream costs.

Next year is going to be a pivotal one in the health care field: Hospitals have not normalized to pre-COVID-19 rates of elective surgeries and other services. As a result, organizations will be looking for ways to cut back. This is where laboratory stewardship can be helpful. Dr. Fletcher introduced the idea of formularies and moving in that direction. Moving to formularies is a wise direction for hospitals. We'll see more openness to hard stops in the EHR where a clinician is prevented from reordering a test that may not have been reported yet or has a normal result in the last 24 hours or the appropriate period.

MODERATOR: Let's talk about the patient for a minute. Why does this matter?

JACKSON: Diagnostics drives everything that happens in health care and, in some ways, it's invisible. It doesn't receive the attention of therapeutics. But getting the disease correctly identified early on, whether it's severity or identifying which therapies will be effective or whatever the test is intended to indicate, getting that done efficiently and accurately sets the stage for everything else. Diagnostic errors are a large proportion of medical errors and getting the right testing done is a big part of process improvement and patient satisfaction.

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