

Diagnostic Testing and Technology Report

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Stephanie Murg, Managing Editor, smurg@ioma.com

Analyzing Test Ordering Patterns Helps Labs Cut Costs and Minimize Waste

In recent decades, a number of studies and countless hard-nosed consultants have focused on inefficiencies and waste when it comes to such aspects of healthcare as hospital admissions and drug prescriptions, but little attention has been paid to lab tests. Can test ordering be optimized? ARUP Laboratories (Salt Lake City) answers with an emphatic “Yes!”

ARUP’s new Analyzing Test Ordering Patterns (ATOP) program offers clinical laboratories the opportunity to take a closer look at their ordering patterns, with an eye to finding and eliminating inappropriate or inefficient ordering. Call it a diagnostics diagnostic.

The ATOP analysis focuses on four primary categories: order volumes compared to order volumes of related tests; order volumes compared to those of other clients; result distributions; and age, sex, and/or result distribution.

The potential savings are vast. Brian Jackson, M.D., ARUP’s medical director of informatics, cites a study published in *Health Affairs* that analyzed the variations in total expenses among various medical procedures. “Overall there were about 60% higher expenditures at the more expensive centers than at the less expensive, but more interesting to me was that the laboratory costs varied even more than the other areas.”

The ATOP program assigns a team of ARUP pathologists and data analysts, as well as University of Utah School of Medicine faculty, to analyze a client’s test ordering patterns looking for areas of potential over-, under-, and misuse. Costs and referral test volumes are compared and evaluated against ARUP’s knowledge base of ordering issues, which draws on their database of more than eight years of archived test orders from hundreds of hospitals and laboratories nationwide.

“Simply by screening ordering volumes of different tests and looking at ratios of ordering volumes of different tests, it’s possible to identify areas of inefficient testing,” says Jackson. The program looks at about two dozen different disease topics. Typically, they focus on whatever the clients ask them to, rather than perform a complete analysis.

The process takes about a month. Plans to offer the service outside the ARUP client base are not yet fully formed. “Historically we haven’t [considered working with outside clients],” says Jackson. “We have all the data on our clients’ esoteric testing. We’ve done some experiments on looking at our clients’ internal ordering data as well, where the clients provided us with a spreadsheet of their test menu

and annual volumes, and by doing that, we can do a more complete analysis.”

Emory Medical Laboratory, part of Emory Healthcare (Atlanta), used the ATOP program as part of an effort to evaluate and optimize their laboratory’s send-outs. When analyzing Emory’s ordering patterns, ARUP discovered that the single largest test request was for serum drug screens. In fact, Emory was ARUP’s largest single client using the test. “We looked at that and thought it was odd,” says James Ritchie, Ph.D., the lab’s associate director. “We weren’t a forensic drug lab. Why was that happening?”

The answer was rooted in Emory’s large organ transplant program, a major component of which is kidney transplants. “Often people who don’t have functioning kidneys can’t make urine, so they couldn’t send urine samples,” says Ritchie. “In those instances, they called down to the lab and asked if they could send a serum drug screen. I OK’d that.” And what appears to have happened was the protocols for kidney transplants were cut-and-pasted into the protocols for all organ transplants. Every single transplant patient had a serum drug screen instead of the less expensive urine drug screen. Emory quickly amended the protocols.

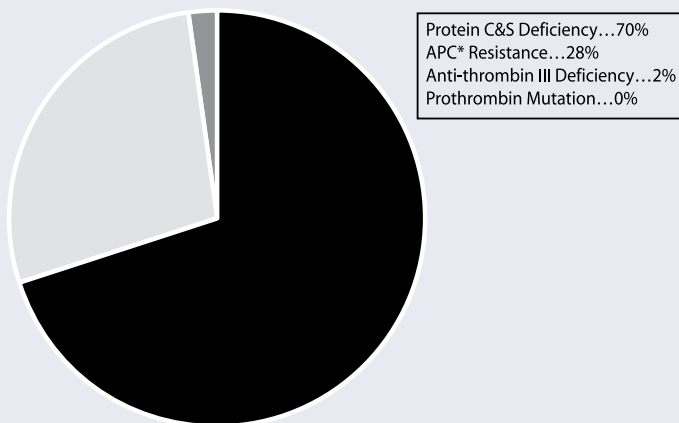
The ATOP program detected other anomalies in Emory’s test ordering, but the blood serum drug screen was the most significant change. How significant? According to Ritchie, the changes made as a result of the program saved Emory about \$75,000 per year.

ARUP also provides the more specific example of a laboratory that was performing a number of tests for inherited thrombotic disorders. ATOP analysis demonstrated that while the prothrombin mutation, protein C and S deficiencies, and anti-thrombin III deficiency combined accounted for less than 10% of all inherited thrombotic disorders, the tests to diagnose these disorders represented 72% of the assays ordered by the laboratory in the period analyzed. By testing for APC resistance first, the analysis suggested, the laboratory’s clinicians

would greatly reduce the number and costs of subsequent tests.

“The role of ATOP analysis is very much a screening tool,” says Jackson. “Because it’s based on a limited dataset that we have, we’re not linking that to clinical data or diagnoses or follow-up testing or anything like that. So we can’t say with respect to any single order: that order is appropriate or not.” What they can say, for example, is that this hospital is ordering five times more of a certain test than another hospital and there is no clear reason why, or that the ratio of Test A to Test B is much higher than you would expect

Testing for Inherited Thrombotic Disorders at Lab X



Source: ARUP
*Activated protein C

if they were following national guidelines. “We’re looking at the patterns of screening and then it’s up to our client to decide which topics to choose to follow up further,” he adds.

Ritchie, however, has found it so helpful he has asked for regularly scheduled reports. “What the whole process has pointed us toward is tracking our send-outs on a computerized system.” Ritchie receives a quarterly report on what his laboratory is sending out and the laboratory’s top 10 tests, which he then passes on to the rest of the staff broken down by lab sections. “That way we can say, ‘Here are targets of opportunity to possibly bring things in-house.’”

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