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Q&A

What's New in Laboratory Test Utilization Management?

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The first automobile accident in the US occurred in 1891, only 6 years after Karl Benz developed the first gasoline-powered production automobile. Less poorly documented is the interval of time that elapsed between Yalow's invention of the immunoassay, Mullis' development of the polymerase chain reaction, or Fenn's demonstration of electrospray mass spectrometry and the first orders for clinical laboratory tests based on these technologies that were placed on the wrong patients, for the wrong reasons, at the wrong times. Our lack of documentary evidence of the timeline of laboratory test malutilization notwithstanding, we in the laboratory industry know full well that each step of progress we make towards technical and biomedical innovation in clinical laboratory testing is accompanied by small but significant steps backwards, as medical practitioners misorder the tests we provide owing to confusion, poorly implemented electronic ordering, a culture of medical practice that encourages daily testing, and a panoply of other reasons. The available data converge on an estimate that on average 30% of laboratory tests are ordered inappropriately or are unneeded, and, equally as worrisome, an unknown but sizeable fraction of laboratory tests are underutilized, meaning that they should be ordered but are not.

Enter the concept of laboratory test utilization management, or "stewardship," or "demand management," or any one of a host of names that describe the role laboratorians can and should play in addressing the problems in our medical systems that conspire to prevent the performance of laboratory tests on the right patients, at the right times, for the right reasons. Although interventions that work (and don't work) to optimize laboratory test utilization have been reported and reviewed extensively in the literature, this Q&A focuses on current topics in the field, with some as-yet unanswered questions posed to leaders in this field.

Laboratory test utilization management is no longer only the domain of the laboratory professional, as ordering providers, health systems, and even those who pay for medical care have taken active interests in the topic. How do you see the role of the laboratory professional in these diversified efforts?

Brian Jackson: I totally agree with the premise. The larger domain here is managing clinical care processes. Laboratory testing is a (usually small) component of a very large number of clinical processes. Ideally there will be multidisciplinary teams set up to do this management. At a minimum, laboratory professionals will contribute as domain experts within these teams. I also see no reason why laboratory professionals couldn't be as well suited as anyone else to provide leadership on these teams.

Jane Dickerson: Frankly, laboratory test utilization never should have been the sole domain of the laboratory professionals—almost every clinical service uses laboratory tests, and it makes sense that ordering providers, health systems, and payers are taking an active interest in this topic. Still, laboratory professionals have an irreplaceable role, with their expertise and proximity to the data. Laboratory professionals have the advan-

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tage of seeing the entire system's laboratory utilization, which is crucial to identifying and prioritizing efforts to improve ordering strategies (unlike the clinician, who may only see what is pertinent to their practice). Successful hospital stewardship programs include a high-ranking pathologist or other doctoral-level laboratory leader on the laboratory stewardship committee. Other laboratory leaders can be instrumental when it comes to topics within their area of expertise (for example, molecular genetics). We should not discount the importance of specific laboratory training and familiarity with technical aspects and clinical implications of tests when evaluating the utilization of laboratory tests. Instead, we as laboratory professionals should welcome the interest from other stakeholders, and agree that the best advocacy comes when we get out of the laboratory and take our message to the streets.

It is also worth noting that not all laboratory professionals are going to be comfortable leading outward-facing efforts on stewardship. This is because some of the conversations about changing test ordering patterns can be uncomfortable. Nevertheless, even those laboratory professionals who do not want to do the interpersonal communication work can play vital roles in data analysis and policy making, especially where they have deep expertise.

Ken Sikaris: Clinicians are interested in having access to tests that facilitate clinical management, whereas administrators are interested in managing the costs of those tests. Laboratory professionals must participate in bridging these imperatives by ensuring that the quality of the tests in the menu support clinical management while also ensuring that they are also offered in a cost effective manner. The value of laboratory tests can be described as the balance between quality and cost. The 2 most important steps in ensuring the value of laboratory testing are appropriate requesting and clear reporting of results including interpretive commenting. These can only be optimized through cooperation between clinical and laboratory professionals and payers should insist on evidence of this cooperation to optimize utilization.

Bernard Croal: The impact of the utilization of laboratory tests occurs across whole patient pathways, from the point that a test is thought about being ordered, all the way through to when the health professional at the end interprets and acts upon the test. It would seem logical therefore that decision-making around test use, interpretation, and action taken as a result falls not only on the

laboratory professional but also on all other healthcare professionals involved in decision-making and the patients themselves. Test utilization interventions are put in place for a number of reasons—sometimes to increase or decrease test use, minimize variation, or limit budgetary spending. It is important that laboratory professionals are involved in the design and delivery of such interventions so as to ensure that appropriate test use in the best interests of patient care and outcomes are paramount to such processes, and that purely monetary drivers or poor evidenced-based utilization do not become the main force driving change.

Standard techniques for managing laboratory test utilization include provision of decision support algorithms, removing obsolete tests from order menus, and designing reflexive test algorithms. What are the newer, innovative, or highly effective utilization management interventions that you use in your own health system?

Brian Jackson: Managing order sets isn't particularly new, but I'd add it to your list. And though many people wouldn't necessarily think of this as being part of the decision support category, I think it's really important for a laboratory to have a user-friendly online test menu that includes test indications.

Jane Dickerson: I would like to highlight 2 innovative interventions implemented at Seattle Children's Hospital. The first is an interactive dashboard designed for our intensive care units (ICUs)[7] to optimize frequency of high-volume laboratories The dashboard shows the percentage of duplicates/patient or number of tests/patient/day for select inpatient floors and select laboratory tests over a 3-week window. This intervention is unique in a few ways: (*a*) it was designed collaboratively by laboratory leadership and clinician stakeholders; (*b*) a clinician championed the project and developed a forum for reviewing the data weekly; (*c*) the dashboard is interactive—you can select the specific ICU and specific laboratory tests (from the top 20 most common) to see the previous 3 weeks of utilization; and (*d*) the data are pulled from the enterprise data warehouse, so it includes data

[7] Nonstandard abbreviations: ICU, intensive care unit; MRI, minimum retesting interval; EEAF, Enhanced Educational Audit and Feedback; GP, primary care doctor; DVT, deep vein thrombosis; PLUGS, Patient-centered Laboratory Utilization Guidance Services.

from all patients, even those who have not had laboratory testing. Giving providers reliable, regular feedback has resulted in a >50% reduction of total point-of-care testing in the ICUs.

The second intervention worth highlighting is our robust system for case review of expensive, complex send-out tests. Although not unique, it is highly effective at ensuring the right test is ordered. There are several examples in the literature describing case-review systems in hospitals and commercial laboratories. We have recently modified our own processes to include standard work in our send-outs department for identifying and entering cases requiring review in an online database. The cases entered populate 2 queues for review by either genetic counselors or doctoral-level laboratory faculty. We modify approximately 14% of cases and cancel approximately 12%, avoiding >$1.2 million in costs over 5 years. The database supports send-out test workflow, including reviewing, sending, billing, and resulting. For example, when a miscellaneous test is reviewed and sent, an autogenerated billing email is sent to the laboratory client services team with required billing details, including test name, charge, and CPT (Current Procedural Terminology) codes.

Ken Sikaris: Clinical practice guidelines or agreed appropriate use criteria are the formal basis for improving clinical outcomes. They are ideally evidence-based but often built on expert consensus. The need for simplicity in these guidelines often conflicts with the complexity that can exist for each individual patient. The modern description of personalized medicine involves tailoring clinical action to each patient's individualized circumstance. Patient context–specific guidelines on appropriate test requesting become increasingly complex and this cannot be easily specified, taught, or remembered. Clinical decision support software that takes the clinical circumstance of each individual patient into account is the ideal solution. This software guidance can be provided at the point of care, and, when efficiently integrated into routine clinical software, it potentially has direct access to the relevant aspects of each individual's medical history. Relevant recorded aspects for test requesting not only include demographic parameters such as sex, age, pregnancy, and race, but also clinical parameters including their complaints, diagnoses, medications, and previous testing.

Bernard Croal: Recent work within the UK has led to the development and publication of minimum retesting intervals (MRIs) for common laboratory tests. These MRIs define the time period whereby it would be acceptable to repeat the test. Incorporation of such MRIs within test ordering systems at the point of request would enable inappropriate requesting to be blocked with an educational message around repeat testing delivered along with the last previous valid result for that test. Poor functionality within IT systems, however, limits the automated implementation of such strategies in most places. The UK MRI Guidance was published under the auspices of the Royal College of Pathologists and others.

A second strategy that has been successfully implemented is the application of Enhanced Educational Audit and Feedback (EEAF). This involves the feedback of test-requesting rates for commonly requested tests to primary care doctors (GPs) along with the rates of their peers for comparison. This enables the GPs to consider whether they are high or low requesters. Educational commentary around the appropriate use of such tests can also be attached, so as to assist decision-making around the use of such tests. This is then repeated every few months with cumulative changes noted. Such interventions have led to a reduction in inappropriate test use, an increase in appropriate test use, and an improved understanding amongst GPs around the best use of specific tests. This process is now semiautomated and has moved to automated PDF delivery via email to GPs of a personal, tailored feedback document.

Test utilization management is often criticized for focusing only on overutilization, whereas the truth of the matter is that some tests are overused and others are underutilized. How can we assess which tests are over-used vs those that are underutilized, and, moreover, how can we assess the relative costs of each to our health systems?

Brian Jackson: If I had to bet money on this, I'd come down on the side that there's a lot more overuse than underuse. I'm mainly basing that on the perspective that US healthcare has heavy overuse of just about everything that's reimbursed well (i.e., other than mental health and geriatrics). In the end, though, I think we need to shift from talking about utilization to talking about optimization. This covers much more than just whether or not a test is ordered; it's also about things like getting the timing right. Looking at total ordering volume is a reasonable place to start, but we need to be honest that it's only a very crude clue as to possible suboptimized testing. As for cost implications, this is complicated but ideally takes place at the clinical process level rather than the laboratory level.

Ken Sikaris: I certainly agree that most payers, at present, are focused on controlling overutilization costs. This is a paradox when laboratory testing accounts for 3%–5% of total health costs. The impact of that small spend on the downstream costs (95%–97%) is the more appropriate focus. Insurers are certainly aware of the tidal wave of morbidity in the aging population and are begin-

ning to realize that prevention and early detection of subclinical disease may be the main mechanism of controlling the future health costs. Tests that detect preventable subclinical disease such as Hb A_{1c} and urine albumin excretion are currently underutilized and are evidence that we need to shift our priorities toward disease prevention.

Bernard Croal: First, it is important to have available data around test ordering numbers across various healthcare fields. This enables the assessment of the spread of requesting and gives an indication of the nature of any unwarranted variation. Where such unwarranted variation exists, this would imply a degree of both under- and overutilization of a particular test. Both are potentially damaging to healthcare, both in terms of optimizing patient care and also budgets. Such variation has been successfully mapped within the UK as part of the Atlas of Variation work (available by internet search of "NHS atlas of variation in diagnostic services") and has demonstrated over 100-fold variation in test requesting across different parts of England even when adjusted for population size. Determining what is the appropriate level of testing is not straightforward, however. An expert group can decide this, but it is difficult, and simply choosing the median may be better than nothing. Information on disease prevalence within a population, related complication rates, other diagnostic and clinical referral rates, and other surrogate markers can help. Delivery of interventions to promote more rational test use can, however, be difficult and expensive to implement. Data on test-use variation can be very helpful and allow targeting of limited resources to areas that have been identified as potentially inappropriately low or high users. Such data can, of course, equally be used specifically for interventions such as EEAF mentioned above.

Michael Laposata: Virtually all clinical laboratories are constrained by a limited number of clinical laboratory scientists working at the bench performing the assays. When up to 30% of commonly ordered tests like complete blood counts are unnecessary, the necessary tests are in competition with those that provide no help to the patient. This delays the turnaround time for tests urgently needed to make a diagnosis and institute treatment. For example, a delay in the performance of a critical troponin test for a patient with acute substernal chest pain can result in the complications of arrhythmia, congestive heart failure, and ventricular rupture. Even a delay of a few minutes can have lasting effects for patients that are both preventable and costly. In my experience, these completely unquantifiable expenses outside the laboratory budget represent the major cost associated with overtesting. Who can know how much in the way of healthcare resources will be consumed over the ensuing years for individual patients whose treatment for myocardial infarction is delayed?

Still, although there are at least 3 studies showing that overutilization is *perceived* to be more of a problem than underutilization by an approximately 3–1 margin, the opposite is true. One of these studies from the *New England Journal* in 2003 (McGlynn et al. 2003 *NEJM*) shows that underutilization of laboratory tests and imaging studies is a major problem in about 55% of cases involving common disorders. A very recently published study (Sarkar et al. 2007 Diagnosis) involved multiple coagulation experts hearing cases presented to them in real time. When they provided consensus conclusions about whether not overutilization or underutilization of laboratory tests was present in an active case, the same result was obtained as the study in 2003. Underutilization of laboratory test occurred in 3 times as many cases as overutilization, representing about 55% of all cases reviewed.

It is extremely difficult to determine the dollars wasted because of underutilization of laboratory tests, but the major impact is definitely on budgets outside the clinical laboratory. Costs associated with an increased length of stay because of underutilization, for example, are not within the laboratory budget. Consider a patient who presents with a swollen right leg and leg pain, as is typical for a deep vein thrombosis (DVT). The patient may experience a diagnostic error because neither a laboratory test nor an imaging study is done to assess the possibility of a DVT. What is the cost of such a mistake? The answer is extremely difficult to obtain because there are so many possible clinical outcomes for this patient. Some are modestly expensive and others have a major impact on the financial well-being of a healthcare institution. The outcomes that are possible for this patient with a DVT include the following: the DVT does not increase in size and symptoms wane; a small asymptomatic pulmonary embolism develops; the DVT extends and the patient develops postphlebitic syndrome for the rest of their life; the DVT leads to a major pulmonary embolism that requires treatment and hospitalization; the DVT causes the development of an embolism that penetrates a patent foramen ovale (in 1 out of 5 normal individuals) and leads to the development of a permanently disabling stroke; and, finally, the DVT causes death either through stroke or massive pulmonary embolism. What is the cost of each one of these and how many patients with a DVT fall into each of the categories described? The cost of laboratory test malutilization is thus impossible to quantify because it varies so much and the range of outcomes is enormous.

National and international efforts like Choosing Wisely have tried to provide information about low-value medical practices directly to patients. Do you think patient-focused laboratory utilization efforts are worthwhile, and, if so, how can we in the laboratory best communicate with patients?

Brian Jackson: Choosing Wisely has been an impressive educational and cultural success in that it's helping the public as well as the medical community to appreciate and talk about the fact that not all clinical interventions are useful. We still have a long way to go. And we have a much longer way to go in diagnostics than in therapeutics. The problem as I see it is that the behavioral economics around diagnostic testing are a lot more complicated than with therapeutics. Most people don't see any downside of acquiring more information and, in fact, see acquisition of information as an unmitigated positive. I still see highly educated people (including doctors) promoting the benefits of mammograms in highly uncritical ways. The American College of Gastroenterology recently came out with a guideline promoting aggressive workups for minor liver enzyme "abnormalities." We have a long, long way to go on this.

Jane Dickerson: Yes, I believe that patients should be part of shared decision-making when it comes to their care, and to do that effectively, we should provide educational material regarding appropriate utilization of laboratory services. One way to communicate to patients and families is through organized efforts from national societies, similar to Choosing Wisely. At Seattle Children's, we are organizing efforts through the national collaboration, Patient-centered Laboratory Utilization Guidance Services (PLUGS). PLUGS works to engage patients through patient advocacy groups. For example, PLUGS recently involved a local patient advocacy group in the development of rational coverage policies for mitochondrial disease evaluation. In addition, we are looking for families to invite to the annual PLUGS conference on laboratory utilization, as well as creating a patient-centered section of the PLUGS website with resources regarding laboratory utilization. I believe that opening the dialog between families and laboratory professionals will be educational for both parties and ultimately help us achieve our goal for doing the right laboratory tests for the right patient at the right time.

Patient education efforts, by themselves, are likely to be too weak to be successful because of the tremendous amount of misinformation and false advertising on the internet. Patient education efforts are more effective when combined with structural interventions, implemented through stewardship systems inside laboratories or hospitals, which make it difficult to order tests of limited value.

Ken Sikaris: In Australia, surveys have shown that verbal and numeric literacy cannot be assumed, let alone medical literacy. Patient-focused communications need to be clear and simple. In my view, the main purpose of this communication is not to provide lay descriptions of medical information but to engage each individual to take an interest, and control, of their own health. Patient engagement acknowledges that patient motivation has a greater potential than patient "compliance" with medical instructions that they may not understand. Patients often want as many tests as their insurer can afford and may not realize the potential distraction, cost, and harm that inappropriate testing can inflict. The underlying need for reassurance is also better served by empowering each patient with information.

Bernard Croal: Choosing Wisely has had considerable success in parts of healthcare where decision-making around healthcare interventions is controversial or where there are several options that imply different outcomes or side effect profiles. I do believe however that there are very limited situations whereby laboratory tests fit well with this approach. The exception is perhaps so-called cancer screening tests—many of these will be tumor marker type tests that will have high degrees of false positive and negative results but may still be popular with patients. In the UK version of Choosing Wisely, the only test that has really made it to list is prostate specific antigen due to its controversial nature of potentially identifying prostate pathology that does not require intervention. Choosing Wisely has, however, generally had very poor take up within the UK healthcare system—limited time spent with patients is a factor.

Communicating day-to-day laboratory test utilization advice to clinicians can sometimes be contentious, in that the laboratory director's message that a test is not optimal may not be received well by ordering providers who do not wish to change their ordering practices. What tips and tricks can you provide to the reader about how to make these interactions go more smoothly?

Brian Jackson: When the primary communications between laboratory and clinicians is in the form of negative feedback, it creates a big cultural hurdle. I think one of the most important things we can do is to dramatically lower the barriers for clinicians to get answers to their testing questions. When the laboratory professional is only a click and a couple minutes away from the clinician, I think we'll discover that we're seen in a much different light.

Jane Dickerson: The most important tip I can provide is to start with an assumption of good intent, and communicate accordingly. Most care providers, laboratory pro-

fessionals, and support staff come to work to do a good job and do the best thing for the patient. Believing this will help you frame your recommendation in a positive light, demonstrating that you respect and acknowledge their position, even if you disagree. Related to this point, I have found that recommendations are most successful when you are prepared to discuss all the details of the solution you are proposing—I have found that providers are more receptive when you can make the change as efficient as possible. For example, if you suggest changing an order for red blood cell folate to serum folate, you should be prepared to discuss the advantages of serum folate, whether it can be added on to an existing specimen, and if there are any other differences worth highlighting (e.g., cost, turnaround time).

In the end, it is helpful to remember that you have a choice in all of your interactions—to be effective, or to be right. If you are unable to sway a provider with a specific case, don't despair. It can be highly effective to take small "losses," because over time providers will remember the conversation and either not want to have it again, or they will be more amenable the second time around. Another tip is to conduct annual surveys with the providers impacted by your stewardship program. You can gain a lot of helpful feedback and reassurance in these surveys to help you make modifications to your approach, if necessary. For example, we learned in a recent survey that our providers are not as motivated by the cost of a test as they were in years prior—so we don't start with discussing costs when we are making a suggestion to modify an order.

Ken Sikaris: Even when clinical pathologists have medical degrees, clinicians may not respect the guidance from their colleagues in the laboratory. In my experience this is not because clinicians think they know more about tests—they don't. It is because clinicians know more about their own patients and their individualized clinical needs. Providing generalized guidance that respects clinical autonomy allows the clinician to compare formal guidance with their clinical habits without confrontation.

Clinicians tend to practice one on one with the patient. Unless the clinical environment deliberately encourages them to compare their decisions to those of their colleagues, through clinical review, there is little opportunity for varying their habits. Feedback on the variation of test utilization from clinician to clinician similarly offers an opportunity for self-reflection. Of course, some clinicians are relatively immune to self-reflection, and assume that very few of their colleagues are aware of the optimal habits they have developed over a lifetime . . . hopefully, these clinicians are close to retirement.

Bernard Croal: As mentioned above, the addition of peer comparison statistics on test use, the addition of educational reminders, adding in test costs, and providing information on minimum retesting intervals (again with added educational material) can all assist in the persuasion to change practice. More useful of course is to involve nonlaboratory healthcare professionals in the appropriate test-utilization program directly—thus a multidisciplinary approach will create buy-in across many healthcare sectors and individuals. Persuading them that it was their idea and that change will be in the best interests of not just their patients but also their own practice efficiency and costs will usually gain much more traction compared to an automated or dictatorial approach.

Those who pay for medical care, whether national or private health plans, are increasingly imposing laboratory test utilization management measures upon laboratories. What are the positive and negative consequences of this movement, and what can we do as laboratory directors to mitigate the risks that this trend poses to the laboratory?

Brian Jackson: I think it is a disaster whenever payers micromanage clinical care. It just doesn't work. Health systems need to step up and do a competent job controlling costs and actively managing their physicians. At that point health systems can credibly tell payers to take a hike, and they can shift increasingly to capitated care, which has the same effect.

Jane Dickerson: I like to focus on the positive consequence, which is the potential for alignment between laboratories and payers. We should be collaborating more with payers to improve efficiencies and outcomes in the system. In our own institution, we have been working together with our director of payer operations and one of our main payers to develop a mutually beneficial "gold-carding" program. The idea is that we demonstrate our process for internally reviewing cases and preparing preauthorization, agreeing to combine the review with any relevant payer policies. In return, when we submit the request, the insurer agrees to approve what we approve without doing an additional review. We agree to provide auditing documentation, to ensure that we are implementing the process as agreed. This process, which eliminates the wastefulness of dual preauthorization systems, takes time to develop (maybe even years!), but it has precedence from other local systems and is a major improvement when initiated.

To understand the negative consequences of involvement by insurance companies, you have to understand that insurers use 2 types of policies and procedures to achieve test-utilization management. The first is medical necessity policies and the second is administrative policies, which includes fee schedules. The big risks for laboratories regarding medical necessity policies is that insurers have evidence standards that tend to be too high

and their policies are often out of date and slow to be developed and implemented. For example, there are insurers who still offer no coverage for medical exomes to patients with rare genetic syndromes, who would clearly benefit from testing. The significant risk for laboratories regarding administrative policies has to do with fee schedules and administrative rules regarding which laboratories are in or out of network. Some insurers choose the least expensive laboratories with no regard to the many quality problems this introduces. One problem that is particularly dangerous is the discontinuity of care that occurs when patients have common tests performed in multiple different laboratories that are not linked through an electronic medical record. Laboratory information is often lost and this makes trending of results for the chronically ill very difficult. In conclusion, the risks of bad administrative policies are the commodification of laboratory tests, which leads to poor and often unfair reimbursement, and discontinuities of care leading to lost results.

Ken Sikaris: The positive consequence of imposing laboratory management measures is that it encourages communication between the clinic and the laboratory. To encourage tests that are more appropriate to each patient, the clinician may have to transmit the clinical reasoning and the laboratory may have to become involved in that reasoning.

The negative consequence is that a laboratory test will be seen in terms of its cost rather than in terms of its clinical value to each patient. The incremental reagent cost for numerous routine tests is measured in cents rather than dollars, and saying that it isn't worth doing that test isn't far from saying a patient's welfare is not worth those cents. For some tests, such as vitamin D, the driver for decreasing utilization is predominantly cost rather than clinical value. I wonder if the incremental reagent cost of that test was cents, rather than dollars, whether the debate would be so intense.

Laboratory directors need to encourage clinical communication as well as do their best to minimize costs. Minimizing costs should not be an issue of decreasing quality, but increasing scale and the evident trend to consolidation and reference laboratories provides the efficiency that will allow us to provide those vital results that a patient may need, in an affordable way.

Bernard Croal: Appropriate test utilization benefits not just the laboratory provider's budget but will also have a major effect on the overall efficiency of the entire patient pathway and related outcomes—this applies equally to reducing unnecessary testing and increasing appropriate testing that is perhaps not being done—for example, monitoring of diabetes status using Hb A_{1c} may be both under- and overused—each will have consequences for the patient and overall healthcare budgets.

In healthcare systems based around the private provision of laboratory services, there has in the past been reluctance to implement interventions that reduce laboratory testing as this would impact directly on the silo budget of such laboratories with a reduction in income. Healthcare providers and insurance based reimbursement systems, however, are realizing that test overuse can have negative consequences both for the patient but also for subsequent knock-on testing and referrals, all of which may be unnecessary and expensive. Similarly, although increasing underutilized tests will increase expenditure, it may however actually diagnose disease or allow intervention to avoid further complications or illness that would be much more difficult and expensive to treat if missed or delayed.

The promotion of interventions by a laboratory to improve appropriate test utilization can be made on the grounds that such a shift in requesting will benefit patient care and outcomes, reduce further unnecessary testing, and financially benefit the wider healthcare system—this is the argument that needs to be made to both national health service-type provision and the private sector-based provision of healthcare due to the overall benefit derived. There will of course still be many independent laboratory test providers whose bottom line will exist within the silo of laboratory test provision and who are likely to still try and promote unnecessary test use to maximize profit.

As laboratory professionals, we need to ensure that such pressure to implement test use optimization strategies are evidence based and in the best interests of patient care.

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