Intelligence MEMOS

From: Christopher Naugler and Rosalie Wyonch

To: Canada's health regulators

Date: March 5, 2019

Re: **How to Improve the Use and Value of Laboratory Testing**

Every Canadian receives an average of about 15 medical laboratory tests per year. Laboratory tests are the most common medical activity and about 70 percent of medical decisions are based on their results.

Disconcertingly, however, estimates suggest that 16 to 56 percent of those tests are not useful in the diagnosis, treatment or subsequent monitoring of patients' conditions. The importance of laboratory testing in diagnosis, in addition to its significant cost, makes it a prime target for improving quality and efficiency in Canada's health care system.

In our recent C.D. Howe Institute *Commentary* we outline a number of policy options to improve the use and value of laboratory testing in Canada.

Reducing inappropriate use would make the healthcare system as a whole more efficient and improve patient outcomes and experience. Testing overuse can lead to inaccurate diagnosis and potentially inappropriate treatments that can be accompanied by adverse side-effects. If a test should be ordered but isn't, it can delay diagnosis and treatment potentially leading to worsening of the patient's condition. Although the direct costs of laboratory testing represent a relatively small component of overall healthcare expenditures in Canada, the downstream effects of testing in terms of further procedures, referrals and treatments create considerable potential for unnecessary care.

An under-recognized source of medical error is an abundance of false test results. Lab tests have the potential for both false-positive and false-negative results. When a healthy person is administered a diagnostic test, there is about a 5 percent chance the result will be false-positive. This is an unavoidable consequence of the mathematics that underpins the interpretation of laboratory test results.

There are other functional aspects of laboratory testing that increase the potential for medical error. These include contamination or improper collection of test samples, incorrectly identifying the physician or patient, results being delayed or reported incorrectly and physicians and laboratory pathologists using different values to interpret results. Efforts to minimize error are present throughout the medical system. Due to the high-volume usage of laboratory tests, however, even very low error rates will lead to many downstream medical errors and costs.

There is significant room for improvement. The number of tests performed per capita and their costs vary across the country. Even within one geographic region and physician group there are significant differences in clinical practice: the cost of laboratory tests ordered by individual family physicians in Calgary ranges from less than $10,000 to more than $200,000 per year.

Variation in costs and ordering patterns shows that the first step in reducing inappropriate use is to make physicians aware of the problem. For practicing physicians, comparing their ordering practices to their peers could facilitate learning and help reduce practice variation. This could be achieved by implementing a mandatory audit and feedback policy on lab-ordering practices. This should be combined with meaningful consultation between doctors or with laboratory pathologists on appropriate ordering practices.

Another option would be to align incentives with appropriate ordering practices. The current fee-for-service model does not incentivize physicians to reduce testing, since they do not pay for it. Changing primary care physicians' remuneration to discourage excessive test ordering would be a way to make physicians aware of the costs of unnecessary testing and share in the benefits of reducing them through good practice bonuses.

There are also more passive ways of reducing inappropriate laboratory testing. Adapting ordering procedures and requisition forms to make the "default" options more restrictive would decrease total test ordering. The benefit of this option is that physicians are not restricted from ordering a particular test, it simply restricts the default tests they are shown. For tests that have well-defined clinical applications, ordering could be restricted to patients that fall within the guidelines. This has been an effective tool in reducing unnecessary vitamin-D testing in Alberta, Manitoba and Ontario.

Inappropriate use of laboratory tests serves no medical value and results in costs to patients, physicians and the system overall. Governments across Canada should implement policies to improve the appropriateness of laboratory testing. Doing so would decrease health system costs while simultaneously improving the quality of care that patients receive.

Christopher Naugler is department head and Professor of Pathology and Laboratory Medicine, University of Calgary and Rosalie Wyonch is a Policy Analyst at the C.D. Howe Institute.

To send a comment or leave feedback, email us at blog@cdhowe.org.