



Clinical

Canadian family physician knowledge and attitudes toward laboratory utilization management



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ABSTRACT

Objectives: Mitigation of unnecessary and redundant laboratory testing is an important quality assurance priority for laboratories and represents an opportunity for cost savings in the health care system. Family physicians represent the largest utilizers of laboratory testing by a large margin. Engagement of family physicians is therefore key to any laboratory utilization management initiatives. Despite this, family physicians have been largely excluded from the planning and implementation of such initiatives. Our purposes were to (1) assess the importance of lab management issues to family physicians, and (2) attempt to define the types of initiatives most acceptable to family physicians.

Design and methods: We invited all Alberta family practice residents and practicing physicians to participate in a self-administered online electronic survey. Survey questions addressed the perceived importance of lab misutilization, prevalence of various types of misutilization, acceptability of specific approaches to quality control, and responsibility of various parties to address this issue.

Results: Of 162 respondents, 95% considered lab misutilization to be either important or very important. Many physicians placed the responsibility for addressing lab misutilization issues on multiple parties, including patients, but most commonly the ordering physician (97%). Acceptability for common strategies for quality improvement in lab misutilization showed a wide range (35%–98%).

Conclusions: These responses could serve as a framework for laboratories to begin discussions on this important topic with primary care groups.

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1. Introduction

Laboratory testing (chemistry, hematology, microbiology and pathology test requests) is the highest volume procedure in medicine and often estimated to drive at least 70% of downstream medical decisions [1]. However, many laboratory tests are ordered inappropriately. Zhi et al. performed a meta-analysis of the current literature on inappropriate laboratory testing practices and reported that overutilization accounted for an average of 20.6% of lab tests [2]. Unpublished results from our research group show that in Calgary unnecessary repeat

testing accounts for almost an additional 20% of test requests. This widespread misutilization of laboratory tests leads to medical mistakes, missed therapeutic opportunities, misdirected clinical effort, and ultimately misuse of public funds.

Despite the gravity of the situation, laboratory utilization management initiatives generally struggle to show even a 10% reduction in testing. For example, Feldman et al. found that cost display on laboratory order forms resulted in a 9.1% decrease in the number of tests ordered [3]. Giguere et al. noted that printed educational materials have a performance improvement of 4.3% [4]. Van Walraven et al. found that removing a common laboratory test (TSH-Thyroid Stimulating Hormone) from the requisition form resulted in a 12% decrease in its use [5]. Feedback and brief education reminder messages elicited a 10% reduction in testing [6]. Finally, a test frequency restriction of HbA1C testing within a 90-day period only led to a moderate decrease

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of 8% [7]. There is undoubtedly an element of publication bias in the reported successful interventions. Our experience in Calgary is that utilization interventions more commonly result in reductions of 4–5%. Moreover, any improvements that are made are often short-lived. The paradigm of “top-down” management strategies by laboratories or health system administrators has not proven effective or durable.

Unfortunately there has been remarkably little engagement of clinical stakeholders in the planning of strategies. As the largest group of physicians, family doctors are responsible for over 55% of all laboratory expenditures [8]. No broad-scale initiatives will succeed without engagement of this group. Ironically, family physicians have been largely shut out of the planning of utilization management. In this study we will generate background information on:

1. Which utilization management initiatives are acceptable to family physicians?
2. What is the current state of knowledge on laboratory test misutilization among family physicians in Alberta?

2. Methods

In 2014 we invited family physicians throughout the province of Alberta, Canada to participate in a self-administered electronic survey conducted through the online program Survey Monkey. An invitation to participate was distributed by the Alberta Medical Association in their monthly newsletter. Respondents were informed that responses would remain anonymous and consent was implied by completion of the survey. All data was kept only on a secure Alberta Health Services server. Surveys were approved by the University of Calgary Conjoint Health and Research Ethics Review Board. The survey consisted of 8 questions that required approximately 5 min to complete (see supplemental material for a copy of the survey). Questions addressed attitudes and knowledge of (1) importance of lab test misutilization, (2) percentage of all lab tests corresponding to common types of lab misutilization, (3) cost per test of common lab tests (electrolyte panel, vitamin D, and antinuclear antibodies (ANA)), (4) responsible parties to address lab utilization issues, (5) acceptable approaches to quality improvement, (6) demographic data including rural vs. urban and stage of career, (7) desire to participate in lab utilization work-shop and (8) further comments. Respondents were provided with a 5 pt. scale (very unimportant to very important) to answer attitudinal questions. The survey was closed on February 20, 2014 at which time the preliminary results were presented in a lab utilization working group.

3. Statistical analysis

Continuous variables such as cost per test and estimated percentage of mis-ordered tests were summarized by using the mean and standard deviation. The remaining variables were tabulated by category, and percentages were reported. All complete data on each question were used; questions that were left blank were removed from analysis. Tests for differences between resident vs. practicing physicians as well as within practicing physicians (rural versus urban and <5 years versus >5 years of practice) were conducted on all questions. We used *t*-tests for continuous responses and χ^2 tests of association for categorical responses. Statistical analysis was performed with Microsoft Excel 2007 software.

4. Results

We received 162 responses to the survey. Questions that were unanswered were removed from data analysis. The characteristics of the respondents are provided (Table 1). The majority of physicians surveyed practiced in an urban setting with over 5 years of experience.

Of the respondents, 95% agreed that laboratory test overuse is either important or very important (Fig. 1). Respondents felt that lab tests are mis-ordered frequently. Over-ordering of lab tests was perceived as a

Table 1

Characteristics of family physicians that responded to the current lab utilization survey and comparison to the 2014 National Physicians Survey*[†] [9,10].

Characteristics	Respondents from current study	Respondents from National Physicians Survey
Resident Practicing MD	21/157 (13%)	11%
	133/157 (84%)	89%
<i>Practice setting</i> [†]		
Rural	25/133 (19%)	23%
Urban	108/133 (81%)	74.3%
<i>Experience level</i> [†]		
≤5 years	29/133 (22%)	–
>5 years	104/133 (78%)	–
Retired MD	0/157 (0%)	–
Administrative physician	0/157 (0%)	–
Other*	3/157 (2%)	–

* Data provided as number/total and number (percentage) of respondents.

[†] Skipped questions were excluded from ratios and percentages.

[‡] Data for practicing physicians only.

more common occurrence than under-ordering (Fig. 2). Individual perceptions of the frequency of various types of misutilization varied widely with a range between 50% and 95%. The cost estimate by all respondents was highest for ANA (\$73), followed by vitamin D (\$66) and electrolyte panel (\$25) and ranged widely for each test (Fig. 3).

Only three results varied significantly between physician groups ($p > 0.05$). The proportion of all lab tests that were “not ordered when clinically indicated” varied significantly between both physicians in practice greater than 5 years (16% of all lab tests) versus physicians with less than 5 years experience (11% of all lab tests) ($p = 0.001$) and rural (11% of all lab tests) versus urban physicians (16% of all lab tests) ($p = 0.016$). Also, residents felt the cost of electrolytes (CAD\$15.30 per test) was significantly less than staff physicians (CAD\$26.02 per test) ($p = 0.034$).

The respondents placed the responsibility to address laboratory utilization issues on multiple groups (Table 2). The vast majority of Alberta family doctors (96.8%) place the responsibility of addressing lab utilization issues on individual medical doctors followed by diagnostic laboratories (79.4%). It is interesting to note that over half of the respondents (58.7%) felt that patients had a responsibility to address this issue. All initiatives to improve the quality of testing were acceptable to greater than 35.9% of physicians (Table 3). Continuing education was the most widely accepted (98.1%) followed by audit and feedback of test ordering practices to individual physicians (84.6%).

A variety of comments were elicited from respondents which fell into broad categories of education/audit and feedback, restriction of tests, cost display, private clinics, patient pay, and electronic medical

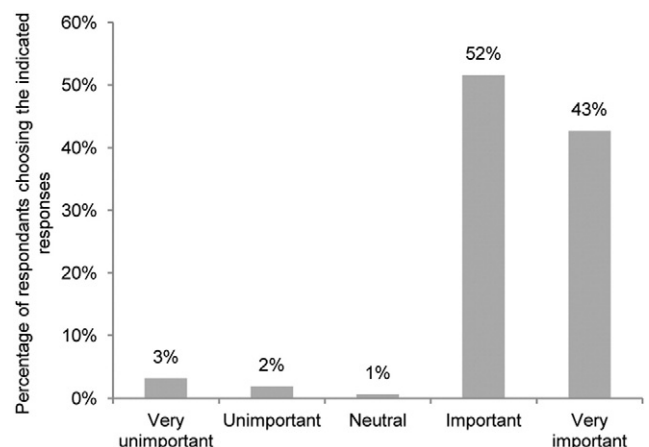


Fig. 1. Perceived importance of lab overuse by family physicians.

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