Assessing the Delivery of Patient Critical Laboratory Results to Primary Care Providers

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ABSTRACT

Approximately 60% to 70% of all health care decisions are based on laboratory test results; therefore, it is important to ensure that patient laboratory results are communicated to the physician in a timely fashion. The objective of this study was to assess the delivery of critical laboratory results in outpatient physician offices in Delaware. Contact information for physician offices was obtained using the Highmark® Blue Cross Blue Shield® physician provider directory. A survey was created using a series of questions regarding the procurement and timely communication of critical laboratory results. Of the offices surveyed, 61.4% indicated that they did not utilize a standard operating procedure specifying who is able to receive the critical laboratory test results and how they should be delivered to the physician. These findings indicate that a change may be necessary to improve the way that critical test results are managed by physician offices.

ABBREVIATIONS: CAP- College of American Pathologists, DHIN- Delaware Health Information Network, EMR- Electronic Medical Record, HIPAA- Health Insurance Portability and Accountability Act, SOP- Standard Operating Procedure

INDEX TERMS: Communication, Clinical competence, Continuity of patient care, Office management/standards, Outcome assessment (health care), Health care surveys, Attitude of health personnel, Clinical laboratory techniques, Medical records systems, computerized, Health information management, Medical informatics, Primary health care, Physicians' offices, Critical pathways, Critical incident technique

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INTRODUCTION

Effective delivery of patient test results to physicians is of primary importance in health care. Approximately 60% to 70% of all health care decisions are based on laboratory test results.[1] Of these laboratory results, critical values are given the highest priority. The CAP defines critical values as abnormal test results that are life threatening and require a rapid response from caregivers.[2] Therefore, it is important to ensure that patient laboratory results are communicated to the physician in a timely fashion.

The system in which outpatient laboratory test results are reported to physicians varies among medical practices, but all laboratory professionals follow a defined protocol which outlines the requirements of how critical results should be communicated to the clinicians. The process of reporting critical laboratory results to physicians for outpatients begins via notification by a member of the clinical laboratory staff. "The medical laboratory is mandated by Clinical Laboratory Improvement Amendments to utilize a rapid alert system for 'panic values' which includes written policies, procedures and complete documentation for critical value reporting."[2] A member of the medical laboratory staff telephones the physician's office and provides the critical laboratory results for the patient. Standard operating procedure (SOP) dictates that documentation of the person receiving the patient test result, date and time, and verification read-back is made using a computerized laboratory information system for accuracy. Test values

may also be sent to the physician's office via an electronic health record or fax.

This study demonstrates that these current approaches do not appear to be working effectively for some physician offices because in most situations the clinician does not directly receive the patient laboratory test results. Nurses, physician assistants, secretaries and other health care personnel working with the primary care provider often have the task of receiving and then delivering the patient test results to the physician. During instances when communication does not happen immediately, the method by which patient laboratory test results are organized within the office can be a source of error. If the primary care provider is responsible for receiving critical test results, a high volume of medical alerts, calls, and messages received can lead to an overlooked critical patient test result.[3] As a consequence, follow up testing or treatment may not be quickly and effectively managed for the patient and the physical health of the patient can decline, in some cases drastically.

Physician offices may have an SOP in place detailing the steps necessary for staff to communicate such information to the clinician, but this may not be the case for all medical practices, or existing protocols may not be followed. Previous research has looked at critical value reporting in hospitals and health care organizations,[4] but no focus has been given to physician private care offices. Therefore, the focus of this project was placed on primary care provider offices because they comprise an important part of patient care. The objective of this study was to examine and compare the delivery of patient critical laboratory test results in various primary care provider offices in the state of Delaware.

METHODOLOGY

Contact information for outpatient physician offices in Delaware was obtained using the Highmark® Blue Cross Blue Shield® physician provider directory. Results were filtered to limit information to family medicine and pediatric physician offices in Kent, New Castle, and Sussex counties. The total number of offices selected was 226. A survey was created using a series of questions regarding the procurement of critical laboratory results from medical laboratories (e.g., length of time to report critical results, established standard operating procedure, individual responsible for receiving critical results, etc.). Two mailings of the survey were performed in order to increase the response rate. A three-digit code number was assigned to each physician office and included on the survey to help maintain the anonymity of the physician offices involved in the study. Only the contributing authors had access to the codes. Every question on the survey had multiple choice answers to standardize the responses. Each multiple choice answer was coded with a number in order to facilitate the analysis of the responses. The data were organized and analyzed using the spreadsheet software Microsoft Excel.

RESULTS

Seventy primary care provider offices responded to the survey resulting in a 31.0% response rate. Pediatric offices accounted for 37.1% of the responses and family medicine offices accounted for 62.9% of the responses. Fifty-four practices, or 77.1%, had patient critical laboratory results delivered by more than one method. The majority, 92.9% of the responding practices, received results by telephone and/or fax. Less than one-third, 31.4% of the responding practices, received results directly through the Delaware Health Information Network (DHIN), which is an electronic interface linked to the patient's medical record. The majority, 60.9% of the responding offices, indicated they would not be interested in receiving the critical laboratory results via cell phone through the use of an electronic application, whereas 11.6% of the offices indicated they already use this method (Table 1).

Various staff members were authorized to initially receive the critical laboratory results at 42.9% of the offices, with respondents able to choose multiple personnel from the list provided. Responses included secretary, nurse, physician assistant, physician, receptionist, and medical assistant. A secretary or nurse initially received the results in 40.0% and 38.6% of the practices, respectively. A physician or physician assistant initially received the results in 51.4% and 8.6% of the practices, respectively. Twenty-two offices (31.4%) reported that results are not read back to the person delivering them, if they were received by telephone from the medical laboratory staff. Forty-three offices (61.4%) indicated that there was not an SOP in place that specified who is able to receive the critical laboratory test results and how the results should be

delivered to the clinician (Table 1).

Table 1. Survey responses to initial questions characterizing receipt of critical results.

Survey Response Rate - Total	31.0%
Family Medicine Office	62.9%
Pediatric Office	37.1%
Delivery of Critical Laboratory Test Results	
More than one method	77.1%
Telephone and/or fax	92.9%
Directly through DHIN (electronic interface)	31.4%
Electronic Application for Delivery of Results	
Interested	27.5%
Not interested	60.9%
Already in use	11.6%
Initial Receipt of Critical Laboratory Test Results	
Multiple personnel	42.9%
Secretary	40.0%
Nurse	38.6%
Physician	51.4%
Physician assistant	8.6%
Critical Test Result Read-back to Caller	
Not performed	31.4%
Performed	68.6%
Standard Operating Procedure	
Not in place	61.4%
In place	38.6%

Table 2. Turnaround time for the delivery of critical laboratory test results to the clinician and the communication of critical laboratory values to the patient.

Critical Laboratory Test Results Delivery to Clinician	
Less than 30 minutes	67.1%
30 minutes – 1 hour	11.4%
1 – 3 hours	5.7%
Greater than 3 hours	2.9%
Other	12.9%
Critical Laboratory Test Results Communication to Patient	
Less than 1 hour	52.9%
1 – 4 hours	37.1%
5 – 8 hours	1.4%
Greater than 8 hours	0%
Other	8.6%

Table 3. Self-reported internal obstacles that prevent the clinician from receiving the results in a timely manner and changes recommended within the office to address the obstacles. Participants were able to choose multiple responses.

Internal Obstacles to Timely Receipt of Critical Results	
Excessive workload	62.9%
Lack of SOP	14.3%
Inadequate training	12.9%
Miscommunication	27.1%
Changes Recommended Within Clinician's Office	
None	48.6%
Implementation of SOP	22.9%
Additional training	12.9%
Implementation of electronic application	21.4%

Turnaround time was an important factor that was discussed multiple times within the survey. Results revealed that turnaround time is variable among the outpatient physician offices surveyed (Table 2). Effectiveness of the communication of critical laboratory values in the workplace was another aspect addressed. Excessive workload was identified, by 62.9% of the practices, as an internal obstacle for timely delivery of critical laboratory results, while 14.3% of the offices reported the lack of an SOP as an internal obstacle. Other internal obstacles included inadequate training and miscommunication, which were reported by 12.9% and 27.1% of the practices, respectively. Approximately, 49% of the practices stated they would recommend no changes within their offices, whereas 22.9% would recommend the implementation of an SOP as a change within their office (Table 3).

DISCUSSION

Difficulty reporting critical values is not limited to outpatient physician offices. It is also seen as an issue in hospitals and other healthcare organizations. Primary care providers in these settings report difficulty responding to critical value alerts due to a variety of issues, including increased electronic notifications and alarms.[4] Timely communication of critical laboratory test results is of primary importance for patient safety and health outcomes. From our data it was found that 31.4% of physician offices utilize the DHIN/EMR to receive critical test results. Advantages to the DHIN/EMR over non-electronic methods include decreased human error and decreased risk of lost patient test results. Over 31% of physician offices do not read

back critical test results over the phone, while more than 61% do not have an established SOP and believe excessive workload is an internal obstacle to communicating test results. These findings indicate that a change may be necessary to improve the way that critical test results are managed by primary care provider offices. It was surprising that a majority of outpatient offices reported that they do not read back critical results since this is a standard of the Joint Commission National Patient Safety Goals, which requires the caller to document that results were correctly read back.[6]

Nearly 23% of physician offices reported that they would like an SOP implemented in their facility as a way to improve the communication of critical laboratory results. Previous research has shown that physicians have been dissatisfied with test result management.[7] Implementing an SOP could help facilitate the management of test results within outpatient physician offices, such as decreasing the variability in turnaround times that was reported in the survey. Approximately 61% of primary care provider offices were not interested in having an electronic application be a method of delivering patient results. This may be due to a concern with HIPAA compliance and other patient confidentiality issues.

The lack of an SOP is a very specific issue that can be easily addressed. Our goal is that the data obtained from this project can be used to further inform healthcare practitioners about improving the mechanism for reporting critical laboratory test results.

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