

## Patient Preferences for Laboratory Test Results Notification

James P. Meza, MD, MSA; and David S. Webster, MD

### **Abstract**

**Background:** Patients whose test results are abnormal cannot make health behavior changes until the final phase of the laboratory testing process, patient notification, has been completed. Patients whose results are normal are often not notified at all. Few studies have examined the problematic aspects of patient notification, a crucial step in a complex and expensive process.

**Objective:** To determine patient preferences for receiving laboratory test results.

**Study Design:** Patient survey by telephone.

**Methods:** Forty-nine patients with hypercholesterolemia who had had a lipoprotein profile performed within the previous 6 months were asked whether or not they had been informed of the test result, how they were informed, how satisfied they were with the process, and how they would prefer to be notified of results. All patients attended a clinic in suburban Detroit. Questions were read from a prepared script.

**Results:** The majority of patients (94%) preferred to receive notification of all test results: both abnormal results accompanied by recommendations for health management changes, and normal results. Preferences for type of notification included mail (59%), phone (16%), office visit (12%), other or multiple response (6%).

**Conclusion:** Notification of both normal and abnormal results is of great importance to patients. Further studies are needed to determine what form of notification is most effective and which method is most satisfactory to patients.

(*Am J Manag Care* 2000;6:1297-1300)

For editorial comment, please see page 1340.

Individual patient care is delivered within a healthcare system that comprises multiple, complex processes and subsystems. It begins with the patient's perception of a potential problem or with screening for disease. From there, steps include evaluating the individual's health (testing), devising a treatment plan, communicating that plan to the patient, and finally, empowering the patient to make the necessary behavior changes to improve health. However, improvement in health status is only possible when the communication process has been completed. Remarkably little literature has examined a major component of this last phase: the feedback of laboratory results to the patient.

Boohaker and colleagues questioned 207 physicians about their methods of notification.<sup>1</sup> They found that only 28% always notify patients of normal test results, indicating that 72% usually take a "no news is good news" approach to reporting laboratory test results. For the patient who desires involvement in his or her own care, this approach may be found wanting. In addition, Boohaker and coworkers found that 36% of these physicians do not always notify

© Medical World Com

From Henry Ford Health System, Detroit, MI (JPM) and Baptist/St. Vincent Primary Care, Jacksonville, FL (DSW).

Address correspondence to: James P. Meza, MD, Henry Ford Health System, Department of Family Practice, One Ford Place, Room 2C, Detroit, MI 48202-3450. E-mail: jmeza1@hfhs.org.

patients of abnormal test results.<sup>1</sup> The reasons physicians gave for such omissions include trivial results, the patient was expected to visit the clinic soon, patient unavailability, forgetfulness, and lack of time.

Boohaker and colleagues also outlined a 4-step process for optimal handling of patients' test results after a laboratory test has been ordered: (1) track until results are received; (2) notify patient of results; (3) document notification; and (4) track until follow-up is completed. According to Lawrence, the pitfalls for the healthcare provider of failing to communicate test results are that the perspectives and the needs of the patient remain unknown to the provider.<sup>2</sup> This problem was the impetus for this questionnaire.

Our study focused on a small subsystem of the laboratory testing process—patient notification of laboratory results. We chose lipid profile testing because abnormal results require a patient response or behavior change to make an impact on health, and because the lipid profile is a frequently performed test. Communication between patient and practitioner is difficult under the best circumstances. As the last, essential step in a complex and expensive process of patient care, notification deserves to be performed well and in a way that

meets patients' needs. Physicians' preferences usually determine how and when these laboratory test results are reported. However, in a time when the issue of customer satisfaction is becoming increasingly important, no one has examined patient preferences for receiving laboratory test results. Understanding the needs and preferences of each participant in the testing process is an essential part of improving the process.

To explore this issue, we designed a phone questionnaire (Table 1) to answer the following questions:

- Was the patient notified of test results using the current process?
- Was the patient satisfied with the current process?
- Did the patient believe that all test results should generate a notification process?
- How would the patient prefer to be notified of test results?

... METHODS ...

The practice setting for this study was a suburban Detroit clinic associated with the Henry Ford Health System. Family practice resident physicians participated in approximately 50% of the office visits.

The target population for this study was patients who had been diagnosed with hypercholesterolemia. The sampling frame was hypercholesterolemic patients assigned to the practice whose lipid profiles had been measured within 6 months of the study, a time frame chosen to limit recall bias. Cases were identified by billing codes associated with a lipid profile. We obtained patient demographic data (names, medical record numbers, and telephone numbers) in the same way. The sampling frame using the corporate database resulted in 180 potential cases. The 52 patients who were contacted were randomly selected from this list, and 49 agreed to participate. We obtained the actual laboratory results for each patient from a separate computerized medical record, Medical Information Management System (MIMS), by cross-referencing the medical record numbers. The laboratory results for total cholesterol were grouped into normal (less than 201), high (201-239), and very high (greater than 239).

**Table 1.** Script of the Interview

My name is Dr. \_\_\_\_\_, and I am a resident physician at Henry Ford Medical Center-East Jefferson. Frequently we draw blood tests when we see patients in the office. We want to know how that can be most useful to you. I have a few brief questions to ask you. Is it OK to ask you these questions now?

- Do you think it is OK if your doctor informs you of the test results only if it necessitates change in your management or would you prefer to know the result of every blood test regardless of the result?
- You had blood drawn for cholesterol testing on \_\_\_\_\_ (date). Were you informed of the results of your lab test?
- (If NO and the patient has further questions) Would you like me to ask your doctor to call you?
- (If YES, continue)
- How were you informed?
- Would you prefer instructions by mail, phone, or office visit?
- Were you satisfied with the way you received your results?
- Did you make a change in your diet, exercise, or medicine based on this information?

The protocol for the study was approved by the Institutional Review Board of the Henry Ford Medical Group. Selected patients were contacted by phone and interviewed from a script. Responses were recorded on data collection sheets and later tabulated using Microsoft *Excel*. Calculations and statistics were performed using *SPSS for Windows 6.0*. Descriptive statistics were calculated for each question. Tables were also generated to compare the notification preferences of patients by their cholesterol level results (Table 2), their satisfaction by method of notification (Table 3), and their satisfaction by notification or failure to notify (Table 4). Chi-square statistics were calculated for each of the comparisons.

... RESULTS ...

Of the 49 patients interviewed, seven (14.6%) reported having never been notified of their test results and 41 (85.4%) recalled being notified. There was no recorded response for one patient. Among the notified patients, 26 (62%) received notification by mail, 7 (16.7%) by telephone call, and 9 (21.4%) during a subsequent office visit. Seven patients did not identify the form in which they were notified.

Forty-six respondents (93.9%) answered that the patient should be notified of every laboratory result, whether or not a management change was indicated. Only 3 respondents (6.1%) thought it was acceptable to notify the patient only if a change was indicated. The responses for type of notification preferred included 29 (63%) for mailed letter, 8 (17.4%) for phone call, 6 (13%) for subsequent office visit, and 3 (6.5%) for other or multiple responses. Recorded responses to this question were missing for 3 patients.

Overall, 36 respondents (80%) were satisfied with the notification process and 9 (20%) were not. Recorded responses were missing for 4 respondents. Twenty-eight patients (68.3%) claimed to have changed their diet, exercise protocol, or medication based on the results of their laboratory tests, whereas 13 (31.7%) responded that they had made no changes in management.

Responses to the question concerning usefulness of notification were missing for 8 patients.

As Table 2 shows, when notification methods (mail, telephone, office visit) were cross-tabulated with cholesterol result levels (normal, high, very high), no significant association was found between cholesterol level and the type of notification used ( $P = .17$ ). This finding suggests that patients did not

**Table 2.** Methods of Notification Measured by Cholesterol Level Result

Method of Notification	Level of Cholesterol Result (n=42)		
	Normal	High	Very High
Mail	8	14	4
Phone	1	2	4
Office Visit	4	3	2

**Table 3.** Patient Satisfaction with Methods of Notification

Method of Notification	Satisfaction (n=42)	
	Not Satisfied	Satisfied
Mail	4	22
Phone	2	5
Office Visit	0	9

**Table 4.** Satisfaction of Patients Notified of Laboratory Test Results

Satisfied	Notified (n=45)	
	No	Yes
No	3	6
Yes	1	35

Chi square = 15.32,  $P < .001$ .

prefer one method of notification over another, even though patients with very high cholesterol levels could expect changes in management. Notification methods were also cross-tabulated with the overall satisfaction with the process (Table 3). No significant association was found between type of notification and satisfaction ( $P = .26$ ), suggesting that patients are willing to accept any format for notification of laboratory results.

The only statistically significant study outcome was the difference in satisfaction levels ( $P < .001$ ) between the group that was notified of results and the group that was not (Table 4). Thirty-five of forty-one patients who were notified were also satisfied, whereas only 1 of 4 patients not notified were satisfied, suggesting an association between notification and satisfaction.

---

... DISCUSSION ...

Results of this study indicate that patients are satisfied when they are informed of the results of their laboratory tests, whether normal or abnormal. The only statistically significant comparison was the difference in satisfaction between the group that was notified and the group that was not. The level of significance was reached despite the small sample size. This is one of the major findings of this study, and healthcare protocols should be designed with this information in mind. It is not known if the "no news is good news" approach meets patients' expectations.

Laboratory results notification is a necessary prerequisite for changing health behavior. Many patients in this study indicated that they did change their diet, exercise routines, or medication after being informed of test results.

This study had insufficient power to draw conclusions about which method of laboratory results notification patients prefer. Mail notification is probably the least expensive, but it has several drawbacks. Interaction between the provider and the patient is limited compared with a phone call or an office visit. In addition, there is less opportunity for discussion, clarification, and planning for management changes. However, when patients were given the choice between mail, telephone, or office visit, mail notification was the most frequent response, indicating

that it is current best practice. Further study is needed to understand how patients use the information and what method best meets their needs. New ways of communicating with patients are commercially available, including a phone mail system that allows patients to access their laboratory results using a personal identification number.<sup>3,4</sup> Other possible methods that might be explored include e-mail or an Internet-based web page.

Our results suggest that the interest of patients with hypercholesterolemia in receiving lipid level test results can be extrapolated to patients with other conditions. Patients with diabetes, for example, need to monitor blood sugar levels in order to change behaviors and optimally manage this condition. Proactive notification of these patients with test results would probably be of great interest to them. For more technical and conceptually difficult laboratory tests, it is not known whether patients would show a similar interest in being notified of results. Furthermore, laboratory tests ordered as part of a differential diagnosis rather than part of the ongoing management of an established chronic disease might be especially confusing. This is another area that needs further study.

---

... CONCLUSION ...

In summary, patients want to be notified of all laboratory results, whether or not a change in management is indicated, and patient satisfaction is improved when notification is performed. The most effective method for communicating laboratory results and the notification type most satisfactory to patients have not been determined and deserve further investigation.

---

... REFERENCES ...

1. Boohaker EA, Ward RE, Uman JE, McCarthy BD. Patient notification and follow-up of abnormal test results. *Arch Intern Med* 1996;156:327-331.
2. Lawrence J. Do you always make sure patients get test results? *Manag Care* 1996;5:37-41.
3. Gross R. Answering the call. *Physicians Comput* 1993;11:32-34.
4. Rapaport S. Delivering test results. *Physicians Comput* 1997;14:10-16.