

An Automated System for Client Notification on Sample Receipt and Completion

Project Report

BACKGROUND

The State Hygienic Laboratory at The University of Iowa (SHL) provides analytical and reference laboratory resources for a variety of groups and individuals across the Heartland Region. As Iowa's Public Health Laboratory we work with a significant number of clients including state agencies such as the Iowa Department of Public Health (IDPH), the Department of Natural Resources (DNR), clinical (sentinel) laboratories, and other public health agencies at the county and local levels to safeguard the health of the public. Part of our interaction with these clients occurs through our secure web portal. Currently our clients, now numbering more than 1400, can view and download their results, check on samples that were received by the laboratory, and monitor their sample's status as it moves through the laboratory. State and local partners have access to specific reports such as reportable diseases, performance statistics for program areas such as newborn screening, and patient/case management information. This is a major benefit to sentinel labs since they do not need to rely on the mail to get results, thereby reducing turnaround times.

The State Hygienic Laboratory's last L-SIP assessment indicated that we need to improve our web offering by implementing a process of notifying clients electronically when samples are received and test results are available to be viewed. Since our L-SIP, this request has been repeated in customer satisfaction surveys, clinical (sentinel) lab advisory committee meetings, state and regional laboratory training and professional meetings, and during Kaizen events for process improvements.

DESIGN & IMPLEMENTATION

The design process began by engaging two groups of stakeholders. Several members of the laboratory met face to face with 21 external clients discussing various options. We also received input and feedback through the laboratory advisory group which meets on a regular basis to discuss management issues that affect Iowa's clinical laboratories.

The second group of stakeholders, the laboratory staff, provided detailed input to the design team including workflow information, regulatory requirements, and opportunities for improvement. During these discussions some shortcomings were identified that necessitated programming and process changes within our LIMS.

Following the initial implementation of the design, we convened a pilot group from 6 clinical hospitals to test the functionality of the system. After three weeks of testing, we gathered feedback from five of the six participants using a telephone survey. The questions and survey results are listed in Appendix 1.

We have incorporated changes to our system that were identified as being needed in the

survey. We anticipate putting the changes into production by the middle of August and will inform our clients of the availability of these new services through a combination of mailings and notices on our web site.

OUTCOMES

This project was successful in several ways. It has provided our clients with a simple tool that enables them to receive timely updates about their samples and results. Before this project, the client would have to repeatedly login to our website and run a report to determine if the submitted samples were available. At best, this method was inconvenient and therefore did not fully utilize the potential of our web services which offer immediate access to sample information and test results. A sample e-mail notification is included in Appendix 2.

Beyond the notification, the email content provides additional benefit to our clients and the laboratory. For our clients, the list of samples and their statuses can be used as a receipt for samples sent or availability of results much the same way the UPS tracking information is used to show receipt and expected delivery. This service can also be used to deliver targeted messages about additional laboratory capabilities, new tests, improved methods, and other information that would benefit our clients.

KEY ELEMENTS OF FINAL REPORT

- a. What had prevented this project from taking place earlier?

In the past, our improvement efforts had been primarily focused on internal processes. Our group had not undertaken a process of this nature in the past due only to a limitation of resources. The opportunity to perform a large scale evaluation of our system that includes external stakeholders is time consuming and expensive.

- b. What examples or discussions during the assessment or follow-up indentified the gap?

During the survey portion of the assessment our clients indicated that utilizing our web interface to retrieve results was cumbersome and that a better workflow was needed. Additionally, this point was re-asserted during our face to face meetings with external stake holders.

- c. What is the impact that completing this project has or will have on your laboratory system?

Beyond the benefits that were stated in the outcomes, this project necessitated some internal improvements both in processes and information system. For example, during our internal discussions the decision was made that only verified data should be

included in our sample notification emails. Although a data verification process was always performed, our LIMS at that time did not have a sample status that could be used to capture that information. This new process has improved the overall system and eliminated an old manual notification system that was in existence for many years.

- d. Please identify other gaps that have not yet been addressed. What are the barriers to carrying out improvement projects that would address or correct the issue?

Another gap that exists within the IT group at SHL is a lack of a trained project manager. Constraints that arise due to a lack of resources do not allow us to adequately plan, monitor and assess the outcomes of our activities. For example, without this L-SIP grant, these improvements would not have been possible.

APPENDIX 1: BETA GROUP FEEDBACK

The “Result(s) Available” e-mail notification service for PHIMS was activated for the following beta users on Friday, June 17, 2011.

Name	Organization	E-mail address
Annette Hall	United Clinical Laboratory	annette_hall@pa-ucl.com
Fred Witt	Mercy Hospital Lab. Iowa City	fredwitt3@yahoo.com
James Schwarz	Jefferson County Health Center	jschwarz@jeffersoncountyhealthcenter.org
Julie Westin	Allen Memorial Hospital	westinj@ihs.org
Kathy A. Behrens	Mercy Medical Center	kbehrens@mercyare.org
Kyle Lundberg	Linn County Public Health	Kyle.lundberg@linncounty.org

The follow-up was conducted using a telephone survey (see the list of questions on the next page). We received the following feedback:

Most of the users felt it was a great feature and has been very useful for them and/or their organization. About half of them selected the “2 mails per day” option and the remaining half was happy with the current process. Some also suggested designing a process in which they would receive an e-mail only when there was a positive test result.

From the various pieces of information listed on the e-mail notification report, the SHL accession number was mentioned as the most helpful, followed closely by the collection date. The additional information about the SHL services was found to be very helpful by 67% of our current users. Some of them also suggested including the test name/description with patient information in the e-mail. Some of the other suggestions were to fax reports in the evening to save mailing costs, condense the additional information to ensure it printed on just one page, and build personal preferences for the e-mail set up.

Almost all of them appreciated the service that has been started as it has helped them get the data as early as possible through our web portal.

The ask-shl@uiowa.edu shared email account that was created for our customers was tested and has been operational since Friday, June 17. We have been receiving mails on the same from our clients to add more users.

Since then, we have added the following users as requested by their supervisors for the mentioned organizations.

Name	Organization	E-mail address
Jennifer Brewington	Jefferson County Health Center	jbrewington@jeffersoncountyhealthcenter.org

SURVEY QUESTIONS

1. On a scale of 1-5, 1 being “Very Useful” and 5 being “Not useful at all”, please answer the following question: “How useful is the E-mail notification report for you and your organization?”

2. How is the frequency of these e-mails working out? Please select from the following options:
 - a. Too many times a day
 - b. Would prefer 5 mails a day
 - c. Would prefer 2 mails only per day
 - d. Works great the way it is
 - e. Other: Please comment

3. In your opinion, what is the most helpful piece of information on the e-mail notification from SHL?

4. Is the additional information about the SHL services helpful for you and your organization?

5. Is there any other/additional information that can be included in the e-mail notification report to make it more useful?

6. Any other comments _____

APPENDIX 2: EMAIL EXAMPLE

From: do-not-reply@uhl.uiowa.edu [<mailto:do-not-reply@uhl.uiowa.edu>]

Sent: Monday, July 25, 2011 12:05 PM

To: annette_hall@pa-ucl.com

Subject: Your Results are available from the State Hygienic Laboratory at the University of Iowa

We would like to thank you for using our services. The following sample(s) reports or new results are available:

SHL Accession No.	Date Collected	Date Received	Reference Information
2011064845	2011-06-11	2011-06-15	1100408
2011066683	2011-06-13	2011-06-20	10130976 1100628
2011066898	2011-06-14	2011-06-21	1100884
2011067905	2011-06-17	2011-06-23	1101425

- This report is intended to provide sample information status at the time of generation. If you have web access, please check for the most current sample results at: [PHIMS Web Access](#)
- For questions, please contact us at ask-shl@uiowa.edu or call 319-335-4500/1-800-421-IOWA (4692).

Additional Information:

- This mail was sent from an automated e-mail server. Please do not reply to this message.
- You are receiving this courtesy e-mail because you are a valued SHL customer. If you prefer not to receive this e-mail, you can unsubscribe by updating your e-mail preferences at [PHIMS Web Access](#) or call 319-335-4358.
- **Save the Environment, Go GREEN. For Paperless result delivery, please call 319-335-4358.**
- For information on available clinical, environmental, newborn screening, research and training services offered by the State Hygienic Laboratory, please visit our website at www.shl.uiowa.edu.

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