



# 2012 National Survey on Health Information Exchange in Clinical Laboratories

*If you have questions, please call 1-800-975-2754*

## **Please answer questions in this survey about:**

**Your Privacy is Protected.** All information that would let someone identify you will be kept private. NORC at the University of Chicago will not share your personal information with anyone without your OK. Your responses to this survey are also completely **confidential**. You may notice a number on the cover of the survey. This number is used **only** to let us know if you returned your survey so we don't have to send you reminders.

**Your Participation is Voluntary.** You may choose to answer this survey or not.

**What To Do When You're Done.** Once you complete the survey, place it in the envelope that was provided, seal the envelope, and return the envelope to:

National Survey on Health Information Exchange in Clinical Laboratories  
NORC  
1 N STATE ST, FL 16  
CHICAGO, IL 60602-9925

If you want to know more about this study, please call toll-free at 1-800-975-2754 or email [LabSurvey@norc.org](mailto:LabSurvey@norc.org).

### **Statement of Burden**

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is (0955-0014). The time required to complete this information collection is estimated to average 20 minutes per response, including the time to review instructions, search existing data sources, and gather the data needed, and complete and review the information collection. In you have comments concerning the accuracy of this time estimate(s) or suggestions for improving this form, please write to: U.S. Department of Health & Human Services, OS/OCIO/PRA, 200 Independence Ave., S.W., Suite 336-E, Washington D.C. 20201, Attention: PRA Reports Clearance Officer

## DEFINITIONS (Ordered Alphabetically)

<b>Electronic Health Record (EHR)</b>	An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization.
<b>Electronically</b>	Any computerized exchange typically transmitted over the internet or through a network, using health information technologies such as Electronic Health Record (EHRs) and direct access via a lab portal. Please do not include fax machines.
<b>Health Information Exchange</b>	The electronic movement of health-related information among organizations according to nationally recognized standards.
<b>Health Information Organization</b>	An organization that oversees and governs the exchange of health-related information among organizations according to nationally recognized standards.
<b>HL7 (Health Level 7)</b>	A messaging standard that can be used to send laboratory results from a laboratory to an Electronic Health Record (EHR). Health Level Seven International (HL7) is the global authority on standards for interoperability of health information technology with members in over 55 countries.
<b>LIMS (Laboratory Information Management System)</b>	A collection of computerized methods to acquire, analyze, store, and report laboratory data.
<b>LIS (Laboratory Information System)</b>	A computerized clinical laboratory information system (LIS) is a software system used in a clinical laboratory to computerize laboratory business processes such as test processing, test scheduling, specimen and sample tracking, inventory control, reporting, quality control and quality assurance management, and statistical analysis and surveillance.
<b>LOINC test names (Logical Observation Identifiers Names and Codes)</b>	Terminology used to provide consistent naming of datasets that includes standard codes for laboratory test names; for example, "Test name: Salmonella Stool Culture LOINC Code: 20955-1"
<b>Message standards</b>	A set of rules that allow information to be shared and processed in a uniform and consistent manner. Messaging standards are particularly important because they define how information is packaged and communicated from one party to another. Such standards set the language, structure and data types required for seamless integration from one system to another.
<b>Ordering practitioners</b>	A physician or, when appropriate, a non-physician practitioner who orders services for the patient.
<b>Personal Health Record (PHR)</b>	An electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be drawn from multiple sources while being managed, shared, and controlled by the individual.
<b>Portal</b>	Hosted and maintained by a provider or payer organization, without transferring access and control and use of the information to the individual, are not considered PHRs based on this definition.
<b>SNOMED CT organism codes (Systematized Nomenclature of Medicine)</b>	A standard terminology that includes standard codes for organisms and other results; for example, "Test name: Salmonella Enteridis, SNOMED CT Code:7352500."
<b>Structured format</b>	Documentation of discrete data using controlled vocabulary, creating fixed fields within a record or file, or another method that provides clear structure to information (is not completely free text).
<b>Tests</b>	A clinical diagnostic laboratory service. Service and test are synonymous.
<b>Test results</b>	A laboratory test that is (1) ordered by a provider; (2) performed on received specimens; and (3) finalized and results have been produced. The laboratory has incorporated and calculated reference data to produce the results referenced.

## Section 1. General Information

**We would like to begin by asking you a few background questions about you and your laboratory.**

This survey is being sent to a random sample of clinical laboratories in hospitals. Some hospitals have multiple entities (such as campuses) but are administered by a single administrative unit, while others are recognized as independent entities by accreditation groups such as Medicare.

**For purposes of this survey, we would like you to only respond for the location to which this survey was mailed.**

**Q1. Is your laboratory associated with a hospital that is a single administrative unit or separate entities?**

- 1  Separate entities
- 2  Single administrative unit (this one) → (Go to Q2)

**If separate entities:**

**Q1a. Are the other locations in this state only or in more than one state?**

- 1  This state only
- 2  More than one state

**Q2. Indicate the type of organization that is responsible for establishing policy for overall operation of your hospital. Please select only one.**

Government, nonfederal

- 1  State
- 2  County
- 3  City
- 4  City-County
- 5  Hospital district or authority

Nongovernment, not-for profit (NFP)

- 6  Church-operated
- 7  Other not-for-profit (including NFP Corporation)

Investor-owned, for-profit

- 8  Individual
- 9  Partnership
- 10  Corporation

Government, federal

- 11  Air Force
- 12  Army
- 13  Navy
- 14  Public Health Service
- 15  Veteran's Affairs
- 16  Federal other than 41-45 or 47-48
- 17  PHS Indian Service
- 18  Department of Justice

**Q3. What is your job title?**

- 1  Laboratory Director
- 2  Laboratory Manager
- 3  Laboratory Information System Director
- 4  Medical Laboratory Technician or Clinical Laboratory Technician
- 5  Medical Technologist or Clinical Laboratory Scientist
- 6  Staff Pathologist
- 7  Chief Information Officer
- 8  Other (please specify) \_\_\_\_\_
- 9  Don't know

**Q4. How many full time equivalents (FTEs) currently work only in the hospital laboratory? This would not include administrative and information technology staff who are shared with other parts of the hospital or hospital system.**

- 1  Fewer than 15
- 2  15 to 30
- 3  31 to 45
- 4  46 to 60
- 5  61 or more (if selected, please provide number)
- 6  Don't know

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 Number of full time equivalents

**Q5. Which option below best describes the type of testing your laboratory performs?**

- 1  Anatomic pathology testing → (Go to Q7)
- 2  Clinical pathology testing
- 3  Both

**Q6. Does your laboratory perform any of the following types of clinical pathology testing?**

	Yes	No	Don't know
a. Routine chemistry.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
b. Clinical Microbiology (e.g., Virology, immunology).....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
c. Hematology .....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
d. Genetics .....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
e. Other (please specify)			
_____	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
_____			

## Section 2. Current Systems and Technical Architecture

We would like to ask you about your laboratory's current practices on software-based information management systems. In particular, we are interested in learning about your use of Laboratory Information Systems (LIS) or Laboratory Information Management Systems (LIMS). To facilitate completion of the following sections, we suggest working with your LIS manager.

**Q7. Does your laboratory currently use a Laboratory Information System (LIS/LIMS)?**

- 1  Yes
- 2  No → (Go to Q11)
- 3  Don't Know → (Go to Q11)

**Q8. Does your Laboratory Information System (LIS/LIMS) support multiple laboratories in the hospital system or only your laboratory? By multiple laboratories we mean either a laboratory with multiple physical sites or multiple laboratories located within a single hospital.**

- 1  Multiple laboratories
- 2  Only one laboratory
- 3  Don't Know

**Q9. What type of Laboratory Information System(s) (LIS/LIMS) does your laboratory currently use? Please select all that apply.**

- 1  Commercial system managed by the laboratory
- 2  Commercial system managed by a third-party vendor
- 3  Local or internally developed → (Go to Q11)
- 4  Other (please specify) → (Go to Q11)
- 5  Don't know → (Go to Q11)

**Q10. Which vendor(s) supplies your Laboratory Information System(s) (LIS/LIMS)? Please select all that apply.**

- 1  Cerner
- 2  CPSI
- 3  EPIC
- 4  Healthland
- 5  HMS
- 6  McKesson
- 7  Meditech
- 8  Middleware Vendor (e.g., Merge)
- 9  Orchard
- 10  SCC Soft
- 11  Siemens
- 12  Sunquest
- 13  Other (please specify) \_\_\_\_\_
- 14  Don't Know

## Section 3. Methods Used to Send Test (Lab) Results and Volume of Exchange to Ordering Practitioners

PLEASE REMEMBER TO ONLY RESPOND FOR THE LOCATION TO WHICH THIS SURVEY WAS MAILED.

**Q11. We would like to ask you some questions about test results volume for the calendar year 2012. If you cannot report for the calendar year, please identify the period of time used to report the following test volumes and electronic exchange.**

- 1  2012 calendar year
- 2  Other than calendar year. Please enter the periods this report will cover.

From			To		
Month	Day	Year	Month	Day	Year
		2 0 1			2 0 1

**Q12. Approximately, how many total test results did your laboratory send to ordering practitioners during 2012? By test results we mean a laboratory test that is (1) ordered by an authorized healthcare provider; (2) performed on received specimens; and (3) finalized and results have been produced. e.g., a Complete Blood Count (CBC), not its component parts, should be counted as a single test result. Please consult your records to answer this question. If records are not available, please provide your best estimate.**

1

Number of **total** test results → (Go to Q13)

- From Records
- Estimates

2  Don't Know → (Go to Q12a)

**Q12a. Please select the range that includes the number of total test results.**

- 1  0
- 2  1 to 9,999
- 3  10,000 to 19,999
- 4  20,000 to 29,999
- 5  30,000 to 39,999
- 6  40,000 to 49,999
- 7  50,000 to 59,999
- 8  60,000 to 69,999
- 9  70,000 to 79,999
- 10  80,000 to 89,999
- 11  90,000 to 99,999
- 12  100,000 to 249,999
- 13  250,000 to 999,999
- 14  1 million to 1.99 million
- 15  2.0 million to 2.99 million
- 16  3.0 million to 4.99 million
- 17  5.0+ million

**Q13. Did your laboratory send test results to ordering practitioners during 2012 using any of the following methods? Please answer a-d.**

- |  | Yes                        | No                         | Don't know                 |
|--|----------------------------|----------------------------|----------------------------|
| a. Mail and/or Fax.....  | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |
| b. Electronic <u>non-discrete</u> data (free-text format) including email communications, scanned faxes or documents, text files, and PDF files..... | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |
| c. Electronic <u>discrete data</u> (no free-text format) including excel files, and LIS output reports .....   | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |
| d. Electronic <u>mixed format</u> (free-text and non-free text format), e.g., delivery of pathology or microbiology results.....                     | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |

**Q14. How did your laboratory share test results electronically with ordering practitioners? Please consider only results transmitted in 2012 for the following methods. Please answer a-e.**

- |   | Yes                        | No                         | Don't know                 |
|---|----------------------------|----------------------------|----------------------------|
| a. Web portal provided by your laboratory .....   | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |
| b. Web portal provided by a third party .....   | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |
| c. Third party middleware vendor.....   | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |
| d. Interface to Health Information Exchange (HIE)/Health Information Organization (HIO) ..... | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |
| e. Interface to Electronic Health Records (EHRs).....   | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> |

**Q15. Is your laboratory currently capable of sending test results electronically in a structured format (that is, using the HL7 messaging standard and a vocabulary standard such as LOINC) to an ordering practitioner's Electronic Health Record (EHR)?**

- 1  Yes → (Go to Q15a)  
 2  No → (Go to Q18)  
 3  Don't Know → (Go to Q18)

**Q15a. Does your capability of sending test results electronically in a structured format extend to practitioners not part of your hospital or hospital system?**

- 1  Yes  
 2  No

**Q16. Did your laboratory send test results electronically in a structured format during 2012 to an ordering practitioner's Electronic Health Record (EHR)?**

- 1  Yes → (Go to Q17)  
 2  No → (Go to Q18)  
 3  Don't Know → (Go to Q18)

**Q17. Approximately, how many test results did your laboratory send electronically in a structured format during 2012 to ordering practitioners using Electronic Health Records (EHRs)? Please consult your records to answer this question. If records are not available, please provide your best estimate.**

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 Number of test results → (Go to Q18)

- From Records  
 Estimates

- 2  Don't Know → (Go to Q17a)

**Q17a. Please select the range that includes the number of total test results.**

- 1  0  
 2  1 to 9,999  
 3  10,000 to 19,999  
 4  20,000 to 29,999  
 5  30,000 to 39,999  
 6  40,000 to 49,999  
 7  50,000 to 59,999  
 8  60,000 to 69,999  
 9  70,000 to 79,999  
 10  80,000 to 89,999  
 11  90,000 to 99,999  
 12  100,000 to 249,999  
 13  250,000 to 999,999  
 14  1 million to 1.99 million  
 15  2.0 million to 2.99 million  
 16  3.0 million to 4.99 million  
 17  5.0+ million

## Section 4. Lab Exchange Standards

In the following section, we will refer to "HL7." HL7 (Health Level 7) is a messaging standard that can be used to send laboratory results from a laboratory to an Electronic Health Record (EHR). To facilitate completion of the following sections, we suggest working with your IT staff or your LIS manager.

**Q18. Which of the following messaging standards are currently in use by your laboratory for result reporting? Please select all that apply.**

- 1  HL7 2.3.1
- 2  HL7 2.5.1
- 3  Other HL7 version (please specify) \_\_\_\_\_
- 4  Proprietary
- 5  Other (please specify) \_\_\_\_\_
- 6  None
- 7  Don't know

**Q19. Which vocabulary standard for laboratory result reporting is currently in use by your laboratory? Please select all that apply.**

- 1  LOINC (Logical Observation Identifiers Names and Codes)
- 2  SNOMED CT (Systematized Nomenclature of Medicine)
- 3  Both of the above
- 4  Local Codes
- 5  Other (please specify) \_\_\_\_\_
- 6  None
- 7  Don't know

## Section 5. Barriers to Exchange

We would like to learn about barriers to laboratory information exchange.

**Q20. Which one of the following issues concerning electronic delivery of laboratory test results in a structured format is the primary challenge your laboratory is currently facing? Please select one box.**

- 1  EHR systems are unable to receive structured results
- 2  Insufficient information on exchange options available
- 3  Lack of harmonization of industry accepted standards
- 4  Inability of Laboratory Information System (LIS) to generate/receive electronic messages/ transactions in structured and standardized format
- 5  Subscription rates/fees for exchange service providers (including lab hub, third party middleware vendor, and Health Information Exchange providers) are too high
- 6  Compliance with Clinical Lab Improvement Amendments (CLIA) regulations
- 7  Other (please specify) \_\_\_\_\_
- 8  No challenges experienced in delivering structured laboratory results
- 9  Don't know

**Q21. Which one of the following issues concerning laboratory interfaces for electronic delivery of test results in a structured format to ordering practitioners is the primary challenge your laboratory is currently facing? Please select one box.**

- 1  The time required to build interfaces
- 2  The costs associated with building interfaces
- 3  Lack of harmonization of industry accepted standards
- 4  Lack of specific implementation guides
- 5  Lack of trained staff (human capital) needed to implement the interfaces
- 6  Other (please specify) \_\_\_\_\_
- 7  No challenges experienced in developing laboratory interfaces for delivery of laboratory results
- 8  Don't know

**Q22. Which of the following issues concerning adoption of LOINC codes for sending results best describes the current situation in your laboratory? Please select all that apply.**

- 1  Our laboratory information system (LIS) is not able to store LOINC codes
- 2  Our laboratory does not have LOINC codes/ mapping for some of our tests
- 3  Our laboratory does not have LOINC codes/ mapping for all our tests
- 4  Our laboratory has insufficient resources to maintain LOINC mappings over time
- 5  Our laboratory information system (LIS) is not able to send LOINC codes, as it does not have an interface to send laboratory reports with LOINC codes
- 6  LOINC is not robust enough to support local code
- 7  EHRs do not have the ability to accept LOINC codes
- 8  Other (please specify) \_\_\_\_\_
- 9  No issues experienced in using LOINC codes to send laboratory reports
- 10  Don't know

## Section 6. Implementation of Guidelines and Regulations

In the following question, we will refer to the “LRI guide.” The “LRI guide” is the implementation guide developed by the Office of the National Coordinator’s (ONC) Standards and Interoperability Framework Laboratory Results Interface (LRI) Initiative. It is an implementation guide for electronic submission of laboratory results to ambulatory EHRs. LRI is required for Meaningful Use Stage 2. For more information about the S&I Framework initiatives, including the LRI initiative, visit [http://wiki.siframework.org/Lab+Results+Interface+\(LRI\)+Initiative](http://wiki.siframework.org/Lab+Results+Interface+(LRI)+Initiative)

**Q23. Has your laboratory implemented the LRI guide for laboratory result content and format?**

- 1  Yes
- 2  No
- 3  Don't know

**Q24. Does your laboratory allow patients or their legal representatives direct access to their laboratory results?**

- 1  No → (Go to Q25)
- 2  It is not legal in my state to send laboratory results directly to patients (Go to Q25)
- 3  Yes → (Go to Q24a)
- 4  Don't Know

**Q24a. If YES, please indicate which of the following methods of delivery your laboratory uses to deliver results directly to patients or patients' legal representatives.**

	Yes	No	Don't know
a. Mail and/or Fax.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
b. Web portal solution provided by laboratory.....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
c. Transmission of results to a designated Personal Health Record (PHR).....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
d. Through a community Health Information Organization that provides patient access to information .....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
e. Through a physician's EHR that provides patients access .....	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>

**Q25. Please enter your hospital's Medicare Provider Number below.**

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**Q26. Please provide a contact email address and phone number for the person who completed this survey.**

EMAIL ADDRESS 1 \_\_\_\_\_

EMAIL ADDRESS 2 \_\_\_\_\_

PHONE NUMBER 1 \_\_\_\_\_

PHONE NUMBER 2 \_\_\_\_\_

**Please check this box if more than one person helped complete this questionnaire.**

## End of Questionnaire

### Thank you.

Please return the completed questionnaire in the enclosed postage-paid envelope to:

National Survey on Health Information Exchange in Clinical Laboratories  
NORC  
1 N STATE ST, FL 16  
Chicago, IL 60602-9925

*If you prefer, you may:*

Fax your completed questionnaire to: **877-504-6296** or e-mail it to [LabSurvey@norc.org](mailto:LabSurvey@norc.org).

Please make sure to include the survey cover page in your fax or email.

If you want to know more about this study, please call toll-free at 1-800-975-2754  
or email [LabSurvey@norc.org](mailto:LabSurvey@norc.org).

**VERSION A (HOSPITALS)**