

Laboratory information systems

Part 1 of 18	Antek Healthware Paul Taylor ptaylor@antekhealthware.com 228 Business Center Drive, Reisterstown, MD 21136 800-359-0911 www.antekhealthware.com	Cerner Jenna Halvorson jenna.halvorson@cerner.com 2800 Rockcreek Parkway, Kansas City, MO 64117 816-201-7740 www.cerner.com
See accompanying article on page 71		
Name of laboratory information system	LabDAQ	Cerner Millennium PathNet
First ever/most recent LIS installation (based on August 2010 survey deadline)	1991/August 2010	1982/August 2010
Last major product release for featured LIS	March 2008	August 2010
Total No. of contracts for sites operating LIS	2,480	550 [†]
• Hospital/Independent lab contracts in U.S.	238/322	436/15 [†]
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	1,906/7	1/3 [†]
• Contracts for other U.S. sites/Contracts for foreign sites	0/7 (clinics, reference laboratories)	2/93 [†]
• No. of these contracts that went live between August 2009–August 2010	137	52 [†]
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	12 (1/2/9–clinics, POs, hospitals)	45 (43/2/0) [†]
• Total No. of contracts (live and not live) signed between August 2009–August 2010	149	not available
Total No. of sites operating LIS (No. of these sites outside the U.S.)	2,825 (8–Dubai, Malawi, Uganda, Virgin Islands, Tanzania)	550 (93–Canada, Egypt, Malaysia, Saudi Arabia, Singapore, U.K., Mexico, others)
Percentage of high-volume* sites installed/low-volume** sites installed	not tracked	80%/20%
No. of employees in entire company	148	7,600+
• No. of employees dedicated to LIS development, installation, and support	72	429
No. of billed tests generated annually by labs using this LIS	not tracked	500,000+–21,000,000
Range in No. of workstations in sites operating LIS	1–150+ (mean, 10)	not tracked
Central hardware or service type	Intel/AMD	HP, Compaq, IBM RS/6000
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	system continues uninterrupted
Programming language(s)	Delphi, C++, ASP .Net	Java, Visual Basic, C++, Visual C
Operating system(s)	Windows 2003, 2008, XP, Vista, 7	HP-UX, AIX, VMS
Databases and tools	Oracle	Oracle
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	none	French, German, Spanish
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	65%	100%
• Handheld devices for bedside-positive patient ID	not available	10%
• NCCLS POCT-1A standard interface for POCT devices	available but not installed	installed
• Microbiology/Public health microbiology	15%/2%	100%/installed
• Blood bank donor and transfusion	not available	75%
• Surgical pathology/Cytology	not available/not available	75%/75%
• Molecular pathology/Cytogenetics	not available/not available	10%/10%
• Flow cytometry	2%	50%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	60%	100%
• HIS or EMR interface for order entry/results reporting	30%/60%	100%/100%
• HIS or EMR interface for packaging results into PDF format	40%	100%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	not available/in development
• Ad hoc reporting/Rules-based system	100%/100%	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	25%	50%
• Compliance checking/Billing and accounts receivable	95%/not available	installed/10%
• Materials management and inventory	not available	installed
• Test partition/Remote faxing and printing	20%/55%	installed/installed
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	20%/15%	less than 10%/less than 10%
• Specimen management and tracking	100%	100%
• Compliance and quality assurance tools	100%	100%
• Environmental health/Newborn screening	not available/installed	installed/installed
• HLA (tissue typing)/Stem cell laboratory	not available/not available	10%/installed
Complete LIS application service provider solution	no	yes
ASP for physician order entry and results reporting	yes	yes
Method of charging for ASP service	fixed fee	transaction based
Client software required	browser based	requires that software be installed on a client PC
ASP information conduit	operates over the Internet	operates over the Internet
Client contracts supported from data center not operated by client	229	300
How data center is operated	by vendor	by vendor
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	no	yes
Information systems interfaced	Cerner, CPSI, Healthland, McKesson, Meditech, Siemens, Allscripts-Misys, GE Healthcare, eClinicalWorks, Greenway, iKnowMed, NextGen, others	McKesson, Siemens, Epic, Eclipsys, Meditech, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Roche Diagnostics	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott Diagnostics, Sysmex
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	15%	—
LIS provides validation or testing tools	yes (proprietary)	yes (certification guidelines, documentation, consulting services, others)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (Quest, LabCorp, CodeMap, regional reference labs)/yes	no/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	yes
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	no	yes (50%)
No. of different lab instruments interfaced with LIS	450+	798 models
Source code/User group that meets regularly	escrow/yes (can meet via Internet daily; in person four times per year)	escrow/yes (meets via Internet semi-annually; in person annually)
User can modify screens	no (offer user-defined report writer and custom programming)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	SQL	Cerner Discern Explorer
Smallest cost for LIS hardware/software/monthly maintenance	\$1,700/\$6,000/\$100	—
Largest cost for LIS hardware/software/monthly maintenance	\$100,000/\$580,000/\$5,000	—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> total interoperability with EMR systems, billing systems, hospital information systems, and reference laboratories experienced and responsive technical support staff, sales personnel, and systems integration department for complete system support user-defined rules can be created to eliminate errors and assist in decision making through the testing process 	<ul style="list-style-type: none"> over 30 years of continuous innovation in the LIS market support for increased efficiencies through key capabilities such as online secondary review, autoverification through multiple departments, expert rules, more support for the entire clinical lab within a single LIS and EMR architecture
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		[†] sites, not contracts

Laboratory information systems

Part 2 of 18	Clinical Information Systems (CIS)	Clinlab
	Angela Woolley cissupport@aol.com 18805 Willamette Drive, West Linn, OR 97068 800-869-0680 www.cislab.com	Allen Wilson sales@clinlabinc.com 2411 E. Graves Ave., Suite 1, Orange City, FL 32763 800-487-5227 www.clinlabinc.com
Name of laboratory information system	CIS Lab	Clinlab Advanced LIS†
First ever/most recent LIS installation (based on August 2010 survey deadline)	1981/June 2010	1987/June 2010
Last major product release for featured LIS	May 2010	July 2010
Total No. of contracts for sites operating LIS	42	52
• Hospital/Independent lab contracts in U.S.	6/30	5/15
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	1/1	19/1
• Contracts for other U.S. sites/Contracts for foreign sites	2 (dialysis, veterinary lab)/2 (hospital, independent lab)	11/1 (hospital)
• No. of these contracts that went live between August 2009–August 2010	—	1
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	2 (0/2/0)	1 (0/1/0)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	3	—
Total No. of sites operating LIS (No. of these sites outside the U.S.)	— (2–Singapore, Saipan)	50 (1–Saudi Arabia)
Percentage of high-volume* sites installed/low-volume** sites installed	98%/2%	10%/90%
No. of employees in entire company	8	6
• No. of employees dedicated to LIS development, installation, and support	8	5
No. of billed tests generated annually by labs using this LIS	109,500–1,825,000	25,000–500,000 (mean, 100,000)
Range in No. of workstations in sites operating LIS	5–130 (mean, 34)	2–100 (mean, 15)
Central hardware or service type	CTL, Intel, Dell, HP, others	PC based
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Delphi, Visual Basic, Cobol, C	Microsoft .Net, Delphi
Operating system(s)	SCO Unix, Windows	Windows
Databases and tools	Microsoft SQL server, C-ISAM, any RDBMS, InterBase	Advantage SQL DBS
System includes full transaction logging	no	no
Languages (other than English) offered on system	Chinese, Spanish (for reports)	none
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	98%	100%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	1%	not available
• NCCLS POCT-1A standard interface for POCT devices	available but not installed	not available
• Microbiology/Public health microbiology	98%/10%	90%/10%
• Blood bank donor and transfusion	installed	not available
• Surgical pathology/Cytology	50%/75%	available but not installed/available but not installed
• Molecular pathology/Cytogenetics	available but not installed/installed	available but not installed/available but not installed
• Flow cytometry	available but not installed	available but not installed
• HIS or EMR interface for admissions/discharge/transfer (ADT)	100%	90%
• HIS or EMR interface for order entry/results reporting	90%/100%	90%/90%
• HIS or EMR interface for packaging results into PDF format	90%	90%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	98%/—	not available/not available
• Ad hoc reporting/Rules-based system	5%/100%	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	98%	60%
• Compliance checking/Billing and accounts receivable	100%/98%	100%/not available
• Materials management and inventory	98%	not available
• Test partition/Remote faxing and printing	100%/100%	installed/60%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	100%/100%	70%/70%
• Specimen management and tracking	75%	10%
• Compliance and quality assurance tools	80%	50%
• Environmental health/Newborn screening	installed/not available	installed/not available
• HLA (tissue typing)/Stem cell laboratory	25%/not available	not available/not available
Complete LIS application service provider solution	yes	no
ASP for physician order entry and results reporting	yes	no
Method of charging for ASP service	fixed fee or transaction based (user's option)	—
Client software required	browser based or requires software be installed on a client PC (user's option)	—
ASP information conduit	operates over the Internet or requires use of a VPN or other dedicated connection (user's option)	—
Client contracts supported from data center not operated by client	0	—
How data center is operated	—	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	—
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	yes	no
Information systems interfaced	Healthland, Meditech, McKesson, ADT, PCS, CPSI, Sun (will interface to any vendor)	Meditech, Cerner, Atlas, CSS, Allscripts-Misys, CareEvolve, Pyramed, eClinicalWorks, GE Healthcare, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Integrated Lab Automation Solutions, PVT LabSystems, Olympus, Roche, Abbott, others	Beckman Coulter, Olympus America, Roche Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	98%	60%
LIS provides validation or testing tools	yes (proprietary, linearity)	no
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (LOINC, CPT, ICD-9)/yes	no/no
Software provides indexed field in each test definition for LOINC code	yes	—
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	yes (10%)	no
No. of different lab instruments interfaced with LIS	300+	300
Source code/User group that meets regularly	escrow/no	escrow/no
User can modify screens	no (offer user-defined report writer and custom programming)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	SQL	SQL
Smallest cost for LIS hardware/software/monthly maintenance	\$10,000/\$10,000/\$500	\$2,000/\$10,000/\$125
Largest cost for LIS hardware/software/monthly maintenance	\$150,000/\$150,000/\$10,000	—/\$300,000/—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • price, purchase, or leasing terms • customization; great support team • high quality; user friendly 	<ul style="list-style-type: none"> • offer custom solutions tailored to laboratories' needs • extensive outside interface capabilities with affordable pricing • specialized support
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		†formerly Clinlab 2000

Tabulation does not represent an endorsement by the College of American Pathologists.

Laboratory information systems

Part 3 of 18	Common Cents Systems Carl Barringer carl.barringer@apollolims.com 4701 Trousdale Drive, Suite 119, Nashville, TN 37220 615-834-7666 www.apollolims.com	Comp Pro Med Hal Petersen hpetersen@comppromed.com 3418 Mendocino Ave., Santa Rosa, CA 95403 800-276-4522 www.comppromed.com
Name of laboratory information system	ApolloLIMS [†]	Polytech
First ever/most recent LIS installation (based on August 2010 survey deadline)	1987/August 2010	1981/July 2010
Last major product release for featured LIS	January 2009	April 2010
Total No. of contracts for sites operating LIS	27	107
• Hospital/Independent lab contracts in U.S.	2/7	27/8
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	1/16	36/0
• Contracts for other U.S. sites/Contracts for foreign sites	0/1 (public health)	2 (veterinary)/34 (national and regional hospital labs)
• No. of these contracts that went live between August 2009–August 2010	3	7
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	—	6 (6/0/0)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	—	13
Total No. of sites operating LIS (No. of these sites outside the U.S.)	29 (1–Trinidad)	141 (45–Eritrea, Ethiopia, Phillipines, Bhutan)
Percentage of high-volume* sites installed/low-volume** sites installed	40%/60%	13%/87%
No. of employees in entire company	9	14
• No. of employees dedicated to LIS development, installation, and support	8	9
No. of billed tests generated annually by labs using this LIS	10,000–3,500,000 (mean, 700,000)	30,000–110,000 (mean, 50,000)
Range in No. of workstations in sites operating LIS	5–64 (mean, 16)	1–38 (mean, 8)
Central hardware or service type	Microsoft 2008 server	any (client supplied)
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	system continues uninterrupted
Programming language(s)	Delphi, SQL	C++
Operating system(s)	Microsoft 2008 server	Windows 7, 98, NT, XP, 2000, Vista
Databases and tools	Microsoft SQL, InterSystems Caché	Pervasive
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	—	none
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	40%	100%
• Bar-coded collection labels	80%	100%
• Handheld devices for bedside-positive patient ID	not available	available but not installed
• NCCLS POCT-1A standard interface for POCT devices	available but not installed	available but not installed
• Microbiology/Public health microbiology	70%/70%	13%/available but not installed
• Blood bank donor and transfusion	not available	not available
• Surgical pathology/Cytology	not available/not available	not available/2%
• Molecular pathology/Cytogenetics	not available/not available	not available/not available
• Flow cytometry	not available	2%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	50%	71%
• HIS or EMR interface for order entry/results reporting	100%/100%	40%/48%
• HIS or EMR interface for packaging results into PDF format	100%	not available
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	available but not installed/available but not installed	not available/not available
• Ad hoc reporting/Rules-based system	100%/100%	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	available but not installed	24%
• Compliance checking/Billing and accounts receivable	70%/70%	100%/67%
• Materials management and inventory	20%	not available
• Test partition/Remote faxing and printing	100%/50%	100%/95%
• HIPAA-standard transaction formats	100%	not available
• Web-based remote inquiry of reports/Web access for order entry	25%/10%	installed/27%
• Specimen management and tracking	100%	not available
• Compliance and quality assurance tools	25%	100%
• Environmental health/Newborn screening	30%/5%	not available/not available
• HLA (tissue typing)/Stem cell laboratory	available but not installed/not available	not available/not available
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	no	yes
Method of charging for ASP service	—	fixed fee
Client software required	—	requires that software be installed on a client PC
ASP information conduit	—	operates over the Internet
Client contracts supported from data center not operated by client	—	0
How data center is operated	—	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	yes	no
Information systems interfaced	Siemens, Allscripts-Misys, Meditech	GE Healthcare, Intermed, Siemens, eClinicalWorks, Healthland, Allscripts-Misys, Healthmatics, Medical Manager, Medlogix, VitalWorks, Cerner, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics, Abbott Diagnostics	no
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	25%	10%
LIS provides validation or testing tools	yes (in-house validation tools)	no
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (ODBC access with appropriate security)/yes	yes/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	yes	yes
LIS supports use of SNOMED CT	yes	no
Market modules for other hospital departments? (percent of installs lab only)	no	no
No. of different lab instruments interfaced with LIS	150+	235+
Source code/User group that meets regularly	escrow/yes (meets via Internet annually; in person as needed)	escrow/no
User can modify screens	yes (offer user-defined report writer and custom programming)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	Microsoft SQL	SQL, Pervasive, ODBC, built-in query capability
Smallest cost for LIS hardware/software/monthly maintenance	\$10,000/\$54,000/\$9,750	0/\$15,000/\$150
Largest cost for LIS hardware/software/monthly maintenance	\$35,000/\$625,000/\$112,000	0/\$145,000/\$1,290
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • intuitive user interface aids training and deployment; data screens and reports can be configured to provide integration with lab's practices • efficient database structure combined with a rules-based architecture provides a flexible LIS platform • fully integrated lab system 	<ul style="list-style-type: none"> • system function and reporting customization with extensive rules-based capabilities combined with easy-to-use screens • standard HL7 interfaces to other computer systems allow full integration of lab data to rest of organization • technically robust system with little to no IT support required; low network bandwidth requirements
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable	[†] formerly M/Lab Enterprise Edition from M/MGMT Systems	

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Laboratory information systems

Part 4 of 18	CPSI Sales Department sales@cpsinet.com 6600 Wall St., Mobile, AL 36695 800-711-2774 www.cpsinet.com	CSS (Computer Service and Support) Jim O'Neill Jr. jimjr@csslis.com 2106 New Rd., Building E6, Linwood, NJ 08221 609-653-6444 www.csslis.com
Name of laboratory information system	CPSI System	CLS2000
First ever/most recent LIS installation (based on August 2010 survey deadline)	1986/August 2010	1980/July 2010
Last major product release for featured LIS	February 2010	July 2010
Total No. of contracts for sites operating LIS	419	99
• Hospital/Independent lab contracts in U.S.	418/1	0/80
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/0	16/2
• Contracts for other U.S. sites/Contracts for foreign sites	0/0	1 (contract research)/0
• No. of these contracts that went live between August 2009–August 2010	28	6
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	14 (14/0/0)	2 (0/2/0)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	42	8
Total No. of sites operating LIS (No. of these sites outside the U.S.)	418 (0)	99 (1–Canada)
Percentage of high-volume* sites installed/low-volume** sites installed	1%/99%	42%/58%
No. of employees in entire company	1,121	20
• No. of employees dedicated to LIS development, installation, and support	269	20
No. of billed tests generated annually by labs using this LIS	150,000–700,000 (mean, 425,000)	22,587–3,387,261 (mean, 757,231.6)
Range in No. of workstations in sites operating LIS	6–500 (mean, 100)	2–58 (mean, 15.27)
Central hardware or service type	IBM x3850	IBM
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Visual C++	C++
Operating system(s)	Linux	AIX 6.1
Databases and tools	CPSI database	Microsoft SQL, MySQL, Lab Base
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	none	none
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	16%	—
• NCCLS POCT-1A standard interface for POCT devices	1%	—
• Microbiology/Public health microbiology	100%/0	86%/—
• Blood bank donor and transfusion	0	—
• Surgical pathology/Cytology	1%/1%	12%/31%
• Molecular pathology/Cytogenetics	0/0	—
• Flow cytometry	0	—
• HIS or EMR interface for admissions/discharge/transfer (ADT)	100%	0
• HIS or EMR interface for order entry/results reporting	100%/100%	67%/81%
• HIS or EMR interface for packaging results into PDF format	100%	81%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	100%/100%	40%/—
• Ad hoc reporting/Rules-based system	100%/100%	74%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	100%	42%
• Compliance checking/Billing and accounts receivable	100%/100%	100%/82%
• Materials management and inventory	100%	0
• Test partition/Remote faxing and printing	100%/100%	25%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	40%/10%	52%/41%
• Specimen management and tracking	—	100%
• Compliance and quality assurance tools	100%	100%
• Environmental health/Newborn screening	0/0	0/0
• HLA (tissue typing)/Stem cell laboratory	0/0	0/0
Complete LIS application service provider solution	yes	no
ASP for physician order entry and results reporting	yes	yes
Method of charging for ASP service	fixed fee	fixed fee
Client software required	browser based or requires that software be installed on a client PC (user's option)	browser based
ASP information conduit	operates over the Internet or requires use of a VPN or other dedicated connection (user's option)	operates over the Internet
Client contracts supported from data center not operated by client	30	—
How data center is operated	by vendor	by vendor
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	yes	no
Information systems interfaced	—	Aspyra, McKesson, Allscripts-Misys, SCC, eClinicalWorks, Medisoft, others
Total laboratory automation systems to which LIS can interface	planned to Beckman Coulter, Siemens, Integrated Laboratory Automation Solutions, Roche Diagnostics	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics, Abbott Diagnostics, Sysmex
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	10%	100%
LIS provides validation or testing tools	no (recommend tools from Micromedex, 3M NEBO)	yes (Ingenix)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (Micromedex)/yes	yes (Ingenix)/no
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	yes	no
Market modules for other hospital departments? (percent of installs lab only)	yes (3%)	no
No. of different lab instruments interfaced with LIS	360 (Dawning Technologies for interface)	—
Source code/User group that meets regularly	escrow/yes (online forum; 8 regional and 1 national meeting per year)	escrow/no
User can modify screens	yes (offer user-defined report writer and custom programming)	yes (offer custom programming)
Query languages to retrieve information from LIS database	CPSI ad hoc reports, optional ODBC database	SQL
Smallest cost for LIS hardware/software/monthly maintenance	\$95,000/\$250,000/\$4,600	\$7,500/\$15,000/\$250
Largest cost for LIS hardware/software/monthly maintenance	\$498,000/\$645,000/\$8,000	\$50,000/\$200,000/\$2,700
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> fully integrated EMR HIS/LIS build libraries and data dictionaries as a standard part of installation and conversion on-site training and support for all end users (not train the trainer) 	<ul style="list-style-type: none"> end-to-end reference lab automation, including comprehensive Web-based outreach, production-oriented LIS, and full lab billing software patient payment portal allows patients to see their statements online and pay electronically using a credit card or electronic check pain-management reporting system
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 5 of 18	Custom Software Systems	Diamond Computing
	DeWitt Rhaly dewitt@css-corporate.com 7012 Westbelt Drive, Nashville, TN 37209 615-350-8111 www.css-corporate.com	Jim Campbell jim@diamondcomputing.net 2345 4th St., Tucker, GA 30084 800-486-5980 www.diamondcomputing.net
Name of laboratory information system	StarLab	LabGEM
First ever/most recent LIS installation (based on August 2010 survey deadline)	1984/April 2005	1984/2009
Last major product release for featured LIS	—	2009
Total No. of contracts for sites operating LIS	19	14
• Hospital/Independent lab contracts in U.S.	17/1	4/10
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	1/0	0/0
• Contracts for other U.S. sites/Contracts for foreign sites	0/0	0/0
• No. of these contracts that went live between August 2009–August 2010	—	1
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	1 (1/0/0)	2 (1/1/0)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	—	2
Total No. of sites operating LIS (No. of these sites outside the U.S.)	19	14
Percentage of high-volume* sites installed/low-volume** sites installed	5%/95%	20%/80%
No. of employees in entire company	29	5
• No. of employees dedicated to LIS development, installation, and support	10	3
No. of billed tests generated annually by labs using this LIS	—	50,000–3,800,000 (mean, 925,000)
Range in No. of workstations in sites operating LIS	2–80	3–500 (mean, 20)
Central hardware or service type	IBM xSeries	Windows server
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Cobol	MSM, Caché, Visual Basic, Active Reports
Operating system(s)	Linux	Windows, Unix
Databases and tools	T-ISAM	MSM, Caché, Visual Basic, Active Reports
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	none	—
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	90%
• Bar-coded collection labels	80%	85%
• Handheld devices for bedside-positive patient ID	5%	not available
• NCCLS POCT-1A standard interface for POCT devices	not available	available in 2011
• Microbiology/Public health microbiology	10%/—	14%/not available
• Blood bank donor and transfusion	not available	not available
• Surgical pathology/Cytology	installed/installed	7%/14%
• Molecular pathology/Cytogenetics	—	not available/not available
• Flow cytometry	—	14%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	80%	90%
• HIS or EMR interface for order entry/results reporting	80%/80%	40%/40%
• HIS or EMR interface for packaging results into PDF format	installed	installed
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	35%/—	not available/not available
• Ad hoc reporting/Rules-based system	45%/available but not installed	100%/100%
• Management and statistical reporting	10%	100%
• Outreach and commercial laboratory	50%	50%
• Compliance checking/Billing and accounts receivable	100%/10%	100%/50%
• Materials management and inventory	available but not installed	not available
• Test partition/Remote faxing and printing	available but not installed/75%	100%/100%
• HIPAA-standard transaction formats	10%	100%
• Web-based remote inquiry of reports/Web access for order entry	available but not installed/available but not installed	10%/25%
• Specimen management and tracking	installed	available but not installed
• Compliance and quality assurance tools	—	installed
• Environmental health/Newborn screening	—	installed/available but not installed
• HLA (tissue typing)/Stem cell laboratory	—	available but not installed/not available
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	no	yes
Method of charging for ASP service	—	fixed fee or transaction based (user's option)
Client software required	—	requires that software be installed on a client PC
ASP information conduit	—	requires use of a VPN or other dedicated connection
Client contracts supported from data center not operated by client	—	1
How data center is operated	—	by vendor
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	—	under development
• Other reportable diseases (blood, lead, immunology, etc.)	—	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	—	no
Information systems interfaced	—	Meditech, McKesson, Atlas, eClinicalWorks, others
Total laboratory automation systems to which LIS can interface	planned	Roche Diagnostics, ScreenScape
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	—	0
LIS provides validation or testing tools	no	no
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	no/no	no/no
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	no	yes
Market modules for other hospital departments? (percent of installs lab only)	yes (20%)	no
No. of different lab instruments interfaced with LIS	42 (Dawning Technologies for interface)	50+
Source code/User group that meets regularly	escrow/no	yes/no
User can modify screens	yes (offer custom programming)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	Microsoft Access, other PC-based tools	SearchGEM
Smallest cost for LIS hardware/software/monthly maintenance	\$25,000/\$35,000/\$600	\$3,000/\$20,000/\$650
Largest cost for LIS hardware/software/monthly maintenance	\$250,000/\$350,000/\$6,000	\$50,000+/\$100,000+/\$7,500+
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> standardized screens and functions make system easy to use total system integration eliminates duplication of work effort developed from the clinical perspective with an emphasis on results reporting to improve efficiency 	<ul style="list-style-type: none"> ability to customize speed of programming close working relationship with clients
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 6 of 18	Eclipsys Mike Nunez mike.nunez@eclipsys.com 3 Ravinia Drive, Atlanta, GA 30346 404-847-5000 www.eclipsys.com	Elekta Impac Software Kymerly Calvo kymerly.calvo@elekta.com 100 Mathilda Place, 5th Floor, Sunnyvale, CA 94086 408-830-8000 www.elekta.com
Name of laboratory information system	Sunrise Laboratory [†]	IntelliLab
First ever/most recent LIS installation (based on August 2010 survey deadline)	2003/June 2010	2003/August 2010
Last major product release for featured LIS	March 2010	August 2010
Total No. of contracts for sites operating LIS	17	65
• Hospital/Independent lab contracts in U.S.	9/6	1/2
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/2	60/1
• Contracts for other U.S. sites/Contracts for foreign sites	0/0	0/1 (educational)
• No. of these contracts that went live between August 2009–August 2010	2	2
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	2 (2/0/0)	0
• Total No. of contracts (live and not live) signed between August 2009–August 2010	17	1
Total No. of sites operating LIS (No. of these sites outside the U.S.)	15 (0)	180 (5–Canada)
Percentage of high-volume* sites installed/low-volume** sites installed	40%/60%	30%/70%
No. of employees in entire company	—	240,000
• No. of employees dedicated to LIS development, installation, and support	—	17
No. of billed tests generated annually by labs using this LIS	—	20,000–500,000
Range in No. of workstations in sites operating LIS	12–100+ (mean, 60)	3–50 (mean, 15)
Central hardware or service type	remote hosting	any Windows-based server or PC
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Microsoft C# .Net, Visual Basic .Net, Clarion 6.3	Visual Basic, C+, .Net
Operating system(s)	Windows 2003 server	Windows 2003, XP, 7, 2008
Databases and tools	Microsoft SQL server 2005	mvBase
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	none	—
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	20%	not available
• NCCLS POCT-1A standard interface for POCT devices	50%	—
• Microbiology/Public health microbiology	60%/10%	20%/not available
• Blood bank donor and transfusion	20%	not available
• Surgical pathology/Cytology	30%/30%	not available/not available
• Molecular pathology/Cytogenetics	available in December 2011/available in December 2011	not available/not available
• Flow cytometry	available in December 2011	not available
• HIS or EMR interface for admissions/discharge/transfer (ADT)	90%	installed
• HIS or EMR interface for order entry/results reporting	40%/100%	85%/85%
• HIS or EMR interface for packaging results into PDF format	available but not installed	installed
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	available but not installed/available but not installed	not available/not available
• Ad hoc reporting/Rules-based system	80%/100%	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	40%	installed
• Compliance checking/Billing and accounts receivable	installed/10%	installed/installed
• Materials management and inventory	30%	not available
• Test partition/Remote faxing and printing	50%/100%	100%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	40%/40%	installed/installed
• Specimen management and tracking	100%	not available
• Compliance and quality assurance tools	100%	not available
• Environmental health/Newborn screening	not available/not available	not available/not available
• HLA (tissue typing)/Stem cell laboratory	not available/not available	not available/not available
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	yes	no
Method of charging for ASP service	fixed fee	—
Client software required	browser based	—
ASP information conduit	operates over the Internet	—
Client contracts supported from data center not operated by client	1	—
How data center is operated	by vendor	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	under development	under development
• Other reportable diseases (blood, lead, immunology, etc.)	under development	under development
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	under development	no
Information systems interfaced	—	NextGen, GE Healthcare, Allscripts-Misys, Varian, Emdeon, Cerner, Sunquest, McKesson
Total laboratory automation systems to which LIS can interface	available but not yet operational to Beckman Coulter, Roche Diagnostics, Abbott Diagnostics	no
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	80%	15%
LIS provides validation or testing tools	no	no
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes/yes	no/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	yes	no
Market modules for other hospital departments? (percent of installs lab only)	yes (80%)	yes (50%)
No. of different lab instruments interfaced with LIS	300+ (Data Innovations for interface)	100 (Dawning Technologies and Data Innovations for interface)
Source code/User group that meets regularly	no/yes (meets in person annually; product design workgroups)	escrow/yes (meets in person annually)
User can modify screens	yes (offer custom programming)	no (offer user-defined report writer)
Query languages to retrieve information from LIS database	ODBC compliant	AQL, SQL with ODBC
Smallest cost for LIS hardware/software/monthly maintenance	—	\$10,000/\$25,000/—
Largest cost for LIS hardware/software/monthly maintenance	—	\$30,000/\$2,000,000/—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • integrated outreach module that provides order entry, result delivery, supply, courier, phlebotomy management • integrated solution across all departments, including anatomic pathology • highly customizable 	<ul style="list-style-type: none"> • fully integrated with Impac Software medical oncology information system • reflex rules engine • microbiology module
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable	[†] formerly PowerLAB from Sysware	

Laboratory information systems

Part 7 of 18	Entre Technology Group Steve Chehansky schehansky@entretechnology.com 2801 W. Loop 820 S, Fort Worth, TX 76116 866-993-6873 www.genesysnsl.com
Name of laboratory information system	GenesysNSL†
First ever/most recent LIS installation (based on August 2010 survey deadline)	1982/August 2010
Last major product release for featured LIS	June 2010
Total No. of contracts for sites operating LIS	89
• Hospital/Independent lab contracts in U.S.	25/3
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	59/0
• Contracts for other U.S. sites/Contracts for foreign sites	0/2 (hospital)
• No. of these contracts that went live between August 2009–August 2010	4
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	3 (0/0/3–clinic, hybrid)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	4
Total No. of sites operating LIS (No. of these sites outside the U.S.)	89 (2–Canada, Bermuda)
Percentage of high-volume* sites installed/low-volume** sites installed	0/100%
No. of employees in entire company	5
• No. of employees dedicated to LIS development, installation, and support	3
No. of billed tests generated annually by labs using this LIS	10,000–250,000 (mean, 100,000)
Range in No. of workstations in sites operating LIS	1–10 (mean, 3)
Central hardware or service type	servers: Seneca, HP
How central server failure is handled	manual intervention necessary to restore operation
Programming language(s)	C++
Operating system(s)	Windows
Databases and tools	SQL
System includes full transaction logging	yes
Languages (other than English) offered on system	—
Features/modules (listed as percent of live installs or based on availability)	
• Chemistry and hematology	100%
• Bar-coded collection labels	50%
• Handheld devices for bedside-positive patient ID	0
• NCCLS POCT-1A standard interface for POCT devices	0
• Microbiology/Public health microbiology	2%/0
• Blood bank donor and transfusion	0
• Surgical pathology/Cytology	0/0
• Molecular pathology/Cytogenetics	0/0
• Flow cytometry	0
• HIS or EMR interface for admissions/discharge/transfer (ADT)	20%
• HIS or EMR interface for order entry/results reporting	20%/20%
• HIS or EMR interface for packaging results into PDF format	not available
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available
• Ad hoc reporting/Rules-based system	100%/installed
• Management and statistical reporting	100%
• Outreach and commercial laboratory	available but not installed
• Compliance checking/Billing and accounts receivable	installed/available but not installed
• Materials management and inventory	not available
• Test partition/Remote faxing and printing	installed/50%
• HIPAA-standard transaction formats	installed
• Web-based remote inquiry of reports/Web access for order entry	available in June 2011/not available
• Specimen management and tracking	not available
• Compliance and quality assurance tools	installed
• Environmental health/Newborn screening	not available/not available
• HLA (tissue typing)/Stem cell laboratory	not available/not available
Complete LIS application service provider solution	no
ASP for physician order entry and results reporting	no
Method of charging for ASP service	—
Client software required	—
ASP information conduit	—
Client contracts supported from data center not operated by client	—
How data center is operated	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:	
• Microbiology data (culture and sensitivity)	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	no
Information systems interfaced	Epic, NextGen, eClinicalWorks, Allscripts-Misys, GE Healthcare, others
Total laboratory automation systems to which LIS can interface	planned to Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	0
LIS provides validation or testing tools	no
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	no/no
Software provides indexed field in each test definition for LOINC code	yes
Provide LOINC dictionary for each new installation	no
LIS supports use of SNOMED CT	yes
Market modules for other hospital departments? (percent of installs lab only)	no
No. of different lab instruments interfaced with LIS	200 (Dawning Technologies for interface)
Source code/User group that meets regularly	no/no
User can modify screens	no (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	SQL
Smallest cost for LIS hardware/software/monthly maintenance	\$1,000/\$4,995/\$83
Largest cost for LIS hardware/software/monthly maintenance	\$15,000/\$49,000/\$500
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • outstanding customer support with instantaneous remote access • strive to maintain 100% customer satisfaction • clients' needs are number one priority
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day	
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day	
***HL7 2.5.1, LOINC, SNOMED, etc.	
Note: a dash in lieu of an answer means company did not answer question or question is not applicable	†formerly Genesys from DynaMedix

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Laboratory information systems

Part 8 of 18	Epic Conan Noronha conan@epic.com 1979 Milky Way, Verona, WI 53593 608-271-9000 www.epic.com	eTeleNext Joseph Nollar sales@etelenext.com 213 Technology Drive, Irvine, CA 92618 949-365-0952 www.etelenext.com
Name of laboratory information system	Beaker Laboratory Information System [†]	eTeleNext LIS
First ever/most recent LIS installation (based on August 2010 survey deadline)	1980/April 2010	2004/July 2010
Last major product release for featured LIS	August 2009	February 2010
Total No. of contracts for sites operating LIS	4	17
• Hospital/Independent lab contracts in U.S.	3/0	0/15
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	1/0	2/0
• Contracts for other U.S. sites/Contracts for foreign sites	0/0	0/0
• No. of these contracts that went live between August 2009–August 2010	1	2
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	76 (75/0/1–public health)	3 (0/1/2)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	15	5
Total No. of sites operating LIS (No. of these sites outside the U.S.)	66 (0)	17 (0)
Percentage of high-volume* sites installed/low-volume** sites installed	6%/94%	30%/70%
No. of employees in entire company	3,848	15
• No. of employees dedicated to LIS development, installation, and support	51	9
No. of billed tests generated annually by labs using this LIS	—	12,900–105,000
Range in No. of workstations in sites operating LIS	1–40	40–175 (mean, 107.5)
Central hardware or service type	HP 9000, HP Integrity, Sun Sparc, IBM p5 Series	IBM, Dell, others
How central server failure is handled	system continues uninterrupted	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Visual Basic, Caché, .Net	C# .Net
Operating system(s)	Unix, Windows	Windows
Databases and tools	Chronicles Extended Relational Database Management System	SQL
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	—	none
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	available but not installed	not available
• NCCLS POCT-1A standard interface for POCT devices	installed	not available
• Microbiology/Public health microbiology	100%/available but not installed	30%/10%
• Blood bank donor and transfusion	not available	10%
• Surgical pathology/Cytology	available but not installed/available but not installed	95%/85%
• Molecular pathology/Cytogenetics	not available/not available	95%/95%
• Flow cytometry	available but not installed	95%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	100%	40%
• HIS or EMR interface for order entry/results reporting	100%/100%	40%/80%
• HIS or EMR interface for packaging results into PDF format	available but not installed	80%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	40%/5%
• Ad hoc reporting/Rules-based system	100%/100%	10%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	installed	55%
• Compliance checking/Billing and accounts receivable	not available/100%	100%/25%
• Materials management and inventory	not available	5%
• Test partition/Remote faxing and printing	100%/100%	40%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	available but not installed/available but not installed	100%/40%
• Specimen management and tracking	100%	100%
• Compliance and quality assurance tools	100%	40%
• Environmental health/Newborn screening	not available/not available	not available/not available
• HLA (tissue typing)/Stem cell laboratory	available but not installed/not available	not available/not available
Complete LIS application service provider solution	no	yes
ASP for physician order entry and results reporting	no	yes
Method of charging for ASP service	—	fixed fee
Client software required	—	browser based
ASP information conduit	—	operates over the Internet
Client contracts supported from data center not operated by client	—	3
How data center is operated	—	by a third party (RackSpace)
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	under development	under development
• Other reportable diseases (blood, lead, immunology, etc.)	under development	under development
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	under development	under development
Information systems interfaced	—	Cortex, GE Healthcare, Allscripts-Misys, Meditech, Cerner, Elekta Impac
Total laboratory automation systems to which LIS can interface	available but not yet operational	available but not yet operational to Beckman Coulter, Siemens, Olympus America, Roche Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	0	40%
LIS provides validation or testing tools	yes (Data Integrity, Testing Toolkits)	yes (proprietary)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (LOINC)/yes	no/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	yes	no
No. of different lab instruments interfaced with LIS	87 (Data Innovations and others for interface)	24 (Data Innovations and Dawning Technologies for interface)
Source code/User group that meets regularly	yes/yes (meets via Internet; in person annually)	escrow/yes (meets via Internet every six months)
User can modify screens	yes (offer user-defined report writer and custom programming)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	Reporting Workbench, SQL Report Writer, ODBC Open Access	SQL, ODBC, XML, HL7
Smallest cost for LIS hardware/software/monthly maintenance	—	—/\$50,000/\$500
Largest cost for LIS hardware/software/monthly maintenance	—	—/\$299,000/\$4,000
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> part of Epic's integrated suite of applications, providing seamless data transfer from LIS to patient's chart without need for interfaces includes integrated handheld specimen collection, specimen tracking, quality control, and more every customer has a designated Epic support team and the opportunity to contribute to the design and direction of the application 	<ul style="list-style-type: none"> advanced Web-based technology, complete with outreach solution custom, user-defined reporting solution new synoptic reporting module
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		
	[†] formerly EpicLab laboratory information system	

Laboratory information systems

Part 9 of 18	Fletcher-Flora Health Care Systems Terry Watson terryw@fletcher-flora.com 1580 Orangethorpe Way, Anaheim, CA 92801 800-777-1471 www.fletcher-flora.com	Hex Laboratory Systems Susan Bollinger sbollinger@hexlab.com 1042B El Camino Real, Suite 308, Encinitas, CA 92024 800-729-2085 www.hexlab.com
Name of laboratory information system	FFlex eSuite LIS [†]	LAB/HEX
First ever/most recent LIS installation (based on August 2010 survey deadline)	1972/August 2010	1981/June 2010
Last major product release for featured LIS	August 2010	May 2010
Total No. of contracts for sites operating LIS	192	141
• Hospital/Independent lab contracts in U.S.	36/12	9/69
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	136/0	42/1
• Contracts for other U.S. sites/Contracts for foreign sites	2/6	9 (veterinary, research)/11 (independent medical labs)
• No. of these contracts that went live between August 2009–August 2010	76	2
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	8 (2/6/0)	—
• Total No. of contracts (live and not live) signed between August 2009–August 2010	84	2
Total No. of sites operating LIS (No. of these sites outside the U.S.)	184 (6–Bahamas, Virgin Islands)	154 (11–Mideast)
Percentage of high-volume* sites installed/low-volume** sites installed	20%/80%	50%/50%
No. of employees in entire company	34	14
• No. of employees dedicated to LIS development, installation, and support	18	14
No. of billed tests generated annually by labs using this LIS	5,000–5,000,000 (mean, 300,000)	250,000–18,000,000+ (mean, 3,500,000)
Range in No. of workstations in sites operating LIS	1–75	3–64 (mean, 24)
Central hardware or service type	Dell	Dell Intel
How central server failure is handled	manual intervention necessary to restore operation	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Java	Thoroughbred
Operating system(s)	Linux, Windows	Linux
Databases and tools	Oracle, Microsoft SQL server, Microsoft SQL Express, MySQL, Unify	Thoroughbred Idol IV
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	none	—
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	not available	2%
• NCCLS POCT-1A standard interface for POCT devices	available but not installed	3%
• Microbiology/Public health microbiology	15%/not available	100%/1%
• Blood bank donor and transfusion	not available	—
• Surgical pathology/Cytology	not available/not available	50%/100%
• Molecular pathology/Cytogenetics	not available/not available	1%/1%
• Flow cytometry	not available	1%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	70%	50%
• HIS or EMR interface for order entry/results reporting	35%/40%	75%/75%
• HIS or EMR interface for packaging results into PDF format	available but not installed	50%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	50%/50%
• Ad hoc reporting/Rules-based system	15%/100%	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	75%	75%
• Compliance checking/Billing and accounts receivable	20%/20%	100%/75%
• Materials management and inventory	not available	1%
• Test partition/Remote faxing and printing	75%/100%	100%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	70%/25%	75%/75%
• Specimen management and tracking	30%	100%
• Compliance and quality assurance tools	100%	100%
• Environmental health/Newborn screening	not available/not available	available but not installed/available but not installed
• HLA (tissue typing)/Stem cell laboratory	not available/not available	available but not installed/available but not installed
Complete LIS application service provider solution	yes	no
ASP for physician order entry and results reporting	yes	yes
Method of charging for ASP service	fixed fee	fixed fee
Client software required	browser based or requires that software be installed on a client PC	browser based
ASP information conduit	operates over the Internet	operates over the Internet
Client contracts supported from data center not operated by client	2	50
How data center is operated	by a third party	by vendor
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	no	yes
• Other reportable diseases (blood, lead, immunology, etc.)	no	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	no	yes
Information systems interfaced	Allscripts-Misys, McKesson, Cerner, GE Healthcare, Epic, NextGen, Medical Manager, iMedica, TechTime, eClinicalWorks, others	Cerner, McKesson, Sunquest, Siemens, Experior, GE Healthcare, WebMD, Medical Manager, Practice Partners, Millbrook, Allscripts-Misys, others
Total laboratory automation systems to which LIS can interface	available but not yet operational to Siemens, Roche Diagnostics	Beckman Coulter, Roche Diagnostics, Abbott Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	0	10%
LIS provides validation or testing tools	yes (internally developed)	yes (Hex)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (Yost Engineering, CodeMap)/no	yes (Medicare, CodeMap, others)/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	no	no
No. of different lab instruments interfaced with LIS	500	300+
Source code/User group that meets regularly	no/no	escrow/no
User can modify screens	yes (offer user-defined report writer and custom programming)	no (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	SQL Query, Open Reports	SQL
Smallest cost for LIS hardware/software/monthly maintenance	\$1,300/\$6,000/\$105	\$5,000/\$10,000/\$250
Largest cost for LIS hardware/software/monthly maintenance	—/\$250,000/\$2,500	\$50,000/\$180,000/\$2,500
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • many optional Web-based modules; provides outreach and integrates multiple sites, systems, and devices seamlessly, securely, and in real-time • 30 years in LIS industry, with more than 1,500 LIS customers and more than 60 host system vendor partners • proven Web-based technology that can be scaled from small POLs to the largest independent labs 	<ul style="list-style-type: none"> • highly flexible; user definable; easy to use • billing fully integrated, stand alone or interface to other system; HIPAA compliant, electronic billing, remittance, medical necessity, ANSI 5010/ICD-10 plans in place • stable, reliable, expandable LIS with fast, responsive customer support 24/7, on-site hardware support, and annual software upgrades at no charge
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable	[†] formerly encaLaber	

Tabulation does not represent an endorsement by the College of American Pathologists.

Laboratory information systems

Part 10 of 18	J & S Medical Associates John Bouchard sales@jsmed.com 35 Tripp St., Framingham, MA 01702 800-229-6000 www.labtrak.com	LabSoft Steven Hawn sales@labssoftweb.com 9104 Shenandoah Run, Wesley Chapel, FL 33544 800-767-3279 www.labssoftweb.com
Name of laboratory information system	LabTrak	LabNet
First ever/most recent LIS installation (based on August 2010 survey deadline)	1988/August 2010	1992/August 2010
Last major product release for featured LIS	March 2010	June 2010
Total No. of contracts for sites operating LIS	64	300+
• Hospital/Independent lab contracts in U.S.	0/61 (POL sites)	15/38
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/0	250+/6
• Contracts for other U.S. sites/Contracts for foreign sites	3 (veterinary, research)/0	5 (research)/0
• No. of these contracts that went live between August 2009–August 2010	22	6
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	2 (0/2/0)	4 (1/1/2)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	—	8
Total No. of sites operating LIS (No. of these sites outside the U.S.)	63	300+ (2–Caribbean)
Percentage of high-volume* sites installed/low-volume** sites installed	0/100%	10%/90%
No. of employees in entire company	15	—
• No. of employees dedicated to LIS development, installation, and support	12	—
No. of billed tests generated annually by labs using this LIS	6,000–200,000 (mean, 80,000)	10,000–1,000,000 (mean, 50,000)
Range in No. of workstations in sites operating LIS	1–6 (mean, 2)	1–75 (mean, 5)
Central hardware or service type	Dell PC	—
How central server failure is handled	manual intervention necessary to restore operation	—
Programming language(s)	Visual Basic	—
Operating system(s)	Microsoft Windows XP, Windows 7	Windows
Databases and tools	Microsoft Access	SQL
System includes full transaction logging	no	—
Languages (other than English) offered on system	none	none
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	90%	100%
• Handheld devices for bedside-positive patient ID	not available	not available
• NCCLS POCT-1A standard interface for POCT devices	not available	not available
• Microbiology/Public health microbiology	10%/not available	5%/not available
• Blood bank donor and transfusion	not available	not available
• Surgical pathology/Cytology	not available/not available	not available/not available
• Molecular pathology/Cytogenetics	not available/not available	not available/not available
• Flow cytometry	not available	not available
• HIS or EMR interface for admissions/discharge/transfer (ADT)	50%	50%
• HIS or EMR interface for order entry/results reporting	50%/50%	50%/50%
• HIS or EMR interface for packaging results into PDF format	not available	0
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	50%/0
• Ad hoc reporting/Rules-based system	not available/not available	15%/40%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	not available	20%
• Compliance checking/Billing and accounts receivable	not available/not available	40%/0
• Materials management and inventory	50%	0
• Test partition/Remote faxing and printing	not available/installed	25%/35%
• HIPAA-standard transaction formats	100%	30%
• Web-based remote inquiry of reports/Web access for order entry	not available/not available	10%/5%
• Specimen management and tracking	100%	100%
• Compliance and quality assurance tools	100%	100%
• Environmental health/Newborn screening	not available/not available	0/0
• HLA (tissue typing)/Stem cell laboratory	not available/not available	0/0
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	no	yes
Method of charging for ASP service	—	fixed fee
Client software required	—	browser based
ASP information conduit	—	operates over the Internet
Client contracts supported from data center not operated by client	—	5
How data center is operated	—	by a third party
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	no	yes
• Other reportable diseases (blood, lead, immunology, etc.)	no	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	no	yes
Information systems interfaced	ECW, Allscripts-Misys, Varian, GE Healthcare, others	Cerner, Allscripts-Misys, Epic, McKesson, Eclipsys, others
Total laboratory automation systems to which LIS can interface	none	Beckman Coulter, Siemens, Roche Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	0	10%
LIS provides validation or testing tools	yes (result analysis)	no
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	no/no	no/no
Software provides indexed field in each test definition for LOINC code	no	no
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	no	yes
Market modules for other hospital departments? (percent of installs lab only)	no	no
No. of different lab instruments interfaced with LIS	150	350+
Source code/User group that meets regularly	no/no	no/—
User can modify screens	no (offer custom programming)	no (offer custom programming)
Query languages to retrieve information from LIS database	SQL	Microsoft
Smallest cost for LIS hardware/software/monthly maintenance	\$1,000/\$2,500/\$85	\$3,500/\$10,000/\$100
Largest cost for LIS hardware/software/monthly maintenance	\$9,000/\$8,500/\$295	\$60,000/\$100,000/\$1,333
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> designed by a medical technologist specifically for the physician office laboratory simple to use; can be trained and running samples in less than one hour complete, easy, affordable solution for the physician's office laboratory 	<ul style="list-style-type: none"> value ease of operation user-definable flexibility
<p>*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day **generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day ***HL7 2.5.1, LOINC, SNOMED, etc. Note: a dash in lieu of an answer means company did not answer question or question is not applicable</p>		

Laboratory information systems

Part 11 of 18	McKesson Joseph R. Stabile joseph.stabile@mckesson.com 5995 Windward Parkway, Alpharetta, GA 30005 404-338-6000 www.mckesson.com/laboratory	Medical Information Technology Paul Berthiaume pberthiaume@meditech.com Meditech Circle, Westwood, MA 02090 781-821-3000 www.meditech.com
Name of laboratory information system	Horizon Lab	Meditech Laboratory Information System-6.0
First ever/most recent LIS installation (based on August 2010 survey deadline)	1972/July 2010	1970/August 2010
Last major product release for featured LIS	July 2010	April 2008
Total No. of contracts for sites operating LIS	123	12
• Hospital/Independent lab contracts in U.S.	115/2	12/0
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	3/0	0/0
• Contracts for other U.S. sites/Contracts for foreign sites	0/3 (hospitals)	0/0
• No. of these contracts that went live between August 2009–August 2010	8	11
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	11 (11/0/0)	32
• Total No. of contracts (live and not live) signed between August 2009–August 2010	9	23
Total No. of sites operating LIS (No. of these sites outside the U.S.)	226 (3–Canada, Saudi Arabia)	12 (0)
Percentage of high-volume* sites installed/low-volume** sites installed	85%/15%	—
No. of employees in entire company	32,000	3,011
• No. of employees dedicated to LIS development, installation, and support	80	112
No. of billed tests generated annually by labs using this LIS	not tracked	not tracked
Range in No. of workstations in sites operating LIS	10–400 (mean, 35)	not tracked
Central hardware or service type	HP, IBM, Dell	Dell, IBM, EMC, HP
How central server failure is handled	system continues uninterrupted	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Delphi, C, Java, .Net	Meditech self developed
Operating system(s)	Windows, Red Hat Enterprise Linux	Windows Server 2003 Enterprise, Datacenter x64 Ed., Server 2008 Service Pack 1 Standard Ed.; PCs: Windows 2000 Professional, XP, Vista
Databases and tools	Oracle, HP-UX, AIX, Linux	Meditech hierarchical database
System includes full transaction logging	yes	no
Languages (other than English) offered on system	none	Spanish
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	installed	100%
• Bar-coded collection labels	installed	100%
• Handheld devices for bedside-positive patient ID	installed	installed
• NCCLS POCT-1A standard interface for POCT devices	installed	installed
• Microbiology/Public health microbiology	installed/installed	100%/installed
• Blood bank donor and transfusion	installed (transfusion only; donor through Horizon Blood Bank)	installed
• Surgical pathology/Cytology	through Horizon AP/through Horizon AP	installed/installed
• Molecular pathology/Cytogenetics	not available/not available	not available/not available
• Flow cytometry	through Horizon AP	not available
• HIS or EMR interface for admissions/discharge/transfer (ADT)	installed	25%
• HIS or EMR interface for order entry/results reporting	installed/installed	25%/25%
• HIS or EMR interface for packaging results into PDF format	through Horizon AP	25%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	not available/not available
• Ad hoc reporting/Rules-based system	installed/installed	100%/100%
• Management and statistical reporting	installed	100%
• Outreach and commercial laboratory	through Horizon Outreach for Lab	installed
• Compliance checking/Billing and accounts receivable	installed/through Horizon Lab Financials	installed/installed
• Materials management and inventory	not available	installed
• Test partition/Remote faxing and printing	installed/installed	100%/100%
• HIPAA-standard transaction formats	installed	100%
• Web-based remote inquiry of reports/Web access for order entry	through Horizon Outreach for Lab/through Horizon Outreach for Lab	installed/installed
• Specimen management and tracking	installed	100%
• Compliance and quality assurance tools	installed	installed
• Environmental health/Newborn screening	installed/installed	installed/installed
• HLA (tissue typing)/Stem cell laboratory	installed/not available	not available/not available
Complete LIS application service provider solution	yes	no
ASP for physician order entry and results reporting	yes	no
Method of charging for ASP service	fixed fee	—
Client software required	physician order entry/lab outreach browser based; LIS deployed on client or via Citrix	—
ASP information conduit	operates over the Internet or requires use of a VPN or other dedicated connection	—
Client contracts supported from data center not operated by client	2	—
How data center is operated	by vendor	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	no	yes
Information systems interfaced	McKesson, Siemens, GE Healthcare, Meditech, Cerner, Epic, Atlas, SCC Soft Computer, Sunquest, homegrown, others	Cerner, Siemens, McKesson, others
Total laboratory automation systems to which LIS can interface	interfaces to all lab automation systems available via Data Innovations	Beckman Coulter, Siemens, Roche Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	0	not tracked
LIS provides validation or testing tools	yes (internal McKesson tools)	yes (proprietary)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (AMA, CMS, Regenstrief Institute, others)/no	yes (Info-X, SNOMED)/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	yes	no
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	yes (50%)	yes (not tracked)
No. of different lab instruments interfaced with LIS	400+ (Data Innovations for interface)	1,000+
Source code/User group that meets regularly	escrow/yes (meets in person annually)	escrow/yes (meets via Internet; in person)
User can modify screens	no (offer user-defined report writer and custom programming)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	any ODBC software package	Meditech Magic
Smallest cost for LIS hardware/software/monthly maintenance	—	—
Largest cost for LIS hardware/software/monthly maintenance	—	—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> advanced bi-directional pharmacy integration with McKesson's pharmacy information solution Support Center Practices (SCP) certified for nine consecutive years substantially decreased total cost of ownership with availability of Linux platform 	<ul style="list-style-type: none"> integrated with Meditech's clinical, administrative, and financial applications flexibility to serve a wide range of organizations—from small community labs to multi-site university labs and large IDNs automates time-consuming tasks, such as paperwork, phone calls, and result verification
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 12 of 18	Medical Information Technology Paul Berthiaume pberthiaume@meditech.com Meditech Circle, Westwood, MA 02090 781-821-3000 www.meditech.com	Medical Information Technology Paul Berthiaume pberthiaume@meditech.com Meditech Circle, Westwood, MA 02090 781-821-3000 www.meditech.com
Name of laboratory information system	Meditech Laboratory Information System—Client/Server	Meditech Laboratory Information System—Magic
First ever/most recent LIS installation (based on August 2010 survey deadline)	1970/August 2010	1970/April 2010
Last major product release for featured LIS	April 2008	April 2010
Total No. of contracts for sites operating LIS	372	799
• Hospital/Independent lab contracts in U.S.	340/0	735/0
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/0	0/0
• Contracts for other U.S. sites/Contracts for foreign sites	0/32	0/64
• No. of these contracts that went live between August 2009–August 2010	18	5
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	15	1
• Total No. of contracts (live and not live) signed between August 2009–August 2010	56	10
Total No. of sites operating LIS (No. of these sites outside the U.S.)	372 (32–Bahamas, United Arab Emirates, Canada, Mexico)	799 (64–United Kingdom, Canada, Ireland)
Percentage of high-volume* sites installed/low-volume** sites installed	—	—
No. of employees in entire company	3,011	3,011
• No. of employees dedicated to LIS development, installation, and support	112	112
No. of billed tests generated annually by labs using this LIS	not tracked	not tracked
Range in No. of workstations in sites operating LIS	not tracked	not tracked
Central hardware or service type	Dell, IBM, EMC, HP	Dell, IBM, EMC, HP
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Meditech Magic	Meditech Magic
Operating system(s)	servers: Microsoft Windows 2003 or 2008 Service Pack 1 Server Standard Edition; clients: Windows 2000 Professional, XP, Vista, XP Tablet	servers: Microsoft Windows 2003 or 2008 Service Pack 1 Server Standard Edition; PCs: Windows 2000 Professional, XP, Vista
Databases and tools	Meditech hierarchical database	Meditech hierarchical database
System includes full transaction logging	no	no
Languages (other than English) offered on system	Spanish	none
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	installed	installed
• NCCLS POCT-1A standard interface for POCT devices	installed	installed
• Microbiology/Public health microbiology	100%/installed	100%/installed
• Blood bank donor and transfusion	installed	installed
• Surgical pathology/Cytology	installed/installed	installed/installed
• Molecular pathology/Cytogenetics	not available/not available	not available/not available
• Flow cytometry	not available	not available
• HIS or EMR interface for admissions/discharge/transfer (ADT)	25%	25%
• HIS or EMR interface for order entry/results reporting	25%/25%	25%/25%
• HIS or EMR interface for packaging results into PDF format	25%	25%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	not available/not available
• Ad hoc reporting/Rules-based system	100%/100%	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	installed	installed
• Compliance checking/Billing and accounts receivable	installed/installed	installed/installed
• Materials management and inventory	installed	installed
• Test partition/Remote faxing and printing	100%/100%	100%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	installed/installed	installed/installed
• Specimen management and tracking	100%	100%
• Compliance and quality assurance tools	installed	installed
• Environmental health/Newborn screening	installed/installed	installed/installed
• HLA (tissue typing)/Stem cell laboratory	not available/not available	not available/not available
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	no	no
Method of charging for ASP service	—	—
Client software required	—	—
ASP information conduit	—	—
Client contracts supported from data center not operated by client	—	—
How data center is operated	—	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	yes	yes
Information systems interfaced	Cerner, Siemens, McKesson, others	Cerner, Siemens, McKesson, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Roche Diagnostics	Beckman Coulter, Siemens, Roche Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	not tracked	not tracked
LIS provides validation or testing tools	yes (proprietary)	yes (proprietary)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (Info-X, SNOMED)/yes	yes (Info-X, SNOMED)/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	yes (not tracked)	yes (not tracked)
No. of different lab instruments interfaced with LIS	1,000+	1,000+
Source code/User group that meets regularly	escrow/yes (meets via Internet; in person)	escrow/yes (meets via Internet; in person)
User can modify screens	yes (offer user-defined report writer and custom programming)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	Meditech Magic	Meditech Magic
Smallest cost for LIS hardware/software/monthly maintenance	—	—
Largest cost for LIS hardware/software/monthly maintenance	—	—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> integrated with Meditech's clinical, administrative, and financial applications flexibility to serve a wide range of organizations—from small community labs to multi-site university labs and large IDNs automates time-consuming tasks, such as paperwork, phone calls, and result verification 	<ul style="list-style-type: none"> integrated with Meditech's clinical, administrative, and financial applications flexibility to serve a wide range of organizations—from small community labs to multi-site university labs and large IDNs automates time-consuming tasks, such as paperwork, phone calls, and result verification
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 13 of 18	NetLims	NoemaLife
	Eram Malinovitz eram@netlims.com 111 Town Square Place, Suite 700, Jersey City, NJ 07310 201-894-5300 www.netlims.com	Fabio Rossi frossi@noemalife.com Via Gobetti, 52, Bologna, Italy 40129 +390514193911 www.noemalife.com
Name of laboratory information system	AutoLims	DNLab
First ever/most recent LIS installation (based on August 2010 survey deadline)	1996/August 2010	1981/2010
Last major product release for featured LIS	October 2009	May 2010
Total No. of contracts for sites operating LIS	14	400
• Hospital/Independent lab contracts in U.S.	2/7	0/0
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/0	0/0
• Contracts for other U.S. sites/Contracts for foreign sites	0/5 (hospitals and central labs)	0/400
• No. of these contracts that went live between August 2009–August 2010	2	—
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	2	3 (3/0/0)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	3	10
Total No. of sites operating LIS (No. of these sites outside the U.S.)	45 (35–Israel, India)	530 (530–Italy, Argentina, Colombia)
Percentage of high-volume* sites installed/low-volume** sites installed	90%/10%	70%/30%
No. of employees in entire company	111	444
• No. of employees dedicated to LIS development, installation, and support	—	70
No. of billed tests generated annually by labs using this LIS	400,000–10,000,000 (mean, 1,500,000)	60,000–13,000,000 (mean, 2,500,000)
Range in No. of workstations in sites operating LIS	19–550 (mean, 60)	15–350 (mean, 50)
Central hardware or service type	IBM, Dell, HP, others	any server supported by Oracle
How central server failure is handled	system continues uninterrupted	system continues uninterrupted
Programming language(s)	C++, Visual Basic, Java, .Net, Flex	Visual Basic 6, Visual Basic .Net, Java
Operating system(s)	Windows 2000, 2003, XP, Linux, Unix	Windows
Databases and tools	Oracle, Microsoft SQL 2000, 2005, Caché	Oracle
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	Hebrew	Italian, Spanish
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	95%	100%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	available but not installed	—
• NCCLS POCT-1A standard interface for POCT devices	not available	not available
• Microbiology/Public health microbiology	85%/25%	75%/75%
• Blood bank donor and transfusion	40%	not available
• Surgical pathology/Cytology	30%/55%	not available/not available
• Molecular pathology/Cytogenetics	15%/10%	5%/5%
• Flow cytometry	10%	available in May 2011
• HIS or EMR interface for admissions/discharge/transfer (ADT)	75%	80%
• HIS or EMR interface for order entry/results reporting	55%/40%	60%/60%
• HIS or EMR interface for packaging results into PDF format	available but not installed	50%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	2%/48%
• Ad hoc reporting/Rules-based system	100%/100%	90%/40%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	100%	5%
• Compliance checking/Billing and accounts receivable	50%/40%	not available/30%
• Materials management and inventory	available but not installed	available but not installed
• Test partition/Remote faxing and printing	100%/100%	50%/3%
• HIPAA-standard transaction formats	100%	not available
• Web-based remote inquiry of reports/Web access for order entry	60%/50%	10%/60%
• Specimen management and tracking	60%	100%
• Compliance and quality assurance tools	70%	30%
• Environmental health/Newborn screening	100%/40%	not available/available in December 2010
• HLA (tissue typing)/Stem cell laboratory	not available/not available	5%/not available
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	no	no
Method of charging for ASP service	—	—
Client software required	—	—
ASP information conduit	—	—
Client contracts supported from data center not operated by client	—	—
How data center is operated	—	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	no
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	yes	no
Information systems interfaced	Eclipsys, GE, Siemens, Allscripts-Misys, Cerner, McKesson, Orchard, Emdeon	Insiel, MedTrack, SAP, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott Diagnostics, Sysmex	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Integrated Laboratory Automation Solutions, Olympus America, Roche Diagnostics, Abbott Diagnostics, others
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	—	50%
LIS provides validation or testing tools	yes (Test Complete)	yes (internal expert system)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (Info-X, AMA, Quest, Specialty, SNOMED, CodeMap)/yes	no/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	yes	no
Market modules for other hospital departments? (percent of installs lab only)	no	yes (70%)
No. of different lab instruments interfaced with LIS	150+	363
Source code/User group that meets regularly	escrow/yes (meets in person approximately biannually)	escrow/no
User can modify screens	yes (offer user-defined report writer and custom programming)	no
Query languages to retrieve information from LIS database	SQL	statistics module provides predefined queries
Smallest cost for LIS hardware/software/monthly maintenance	\$30,000/\$80,000/\$1,000	—
Largest cost for LIS hardware/software/monthly maintenance	\$700,000/\$2,800,000/\$55,000	—
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • technology, variety, and flexibility—Windows system with Web, HTML, choice of database, more • customizable—tailored for any environment and work procedure • integrated—all lab disciplines and billing in one database 	<ul style="list-style-type: none"> • supports complex customer organization, such as virtual lab and regional labs • change-management support • an industry leader in service and support
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 14 of 18	Orchard Software Kerry Foster kfoster@orchardsoft.com 701 Congressional Blvd., Suite 360, Carmel, IN 46032 800-856-1948 www.orchardsoft.com	Psyche Systems Lisa-Jean Clifford lj@psychesystems.com 321 Fortune Blvd., Milford, MA 01757 508-473-1500 www.psychesystems.com
Name of laboratory information system	Orchard Harvest LIS	LabWeb
First ever/most recent LIS installation (based on August 2010 survey deadline)	1993/August 2010	1976/2010
Last major product release for featured LIS	September 2009	2007
Total No. of contracts for sites operating LIS	1,047	19
• Hospital/Independent lab contracts in U.S.	227/133	16/2
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	602/18	0/1
• Contracts for other U.S. sites/Contracts for foreign sites	67 (universities, student health centers, research, veterinary labs)/0	0/0
• No. of these contracts that went live between August 2009–August 2010	87	3
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	14 (1/6/7—clinics, POLs, student health labs)	2 (1/1/0)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	101	4
Total No. of sites operating LIS (No. of these sites outside the U.S.)	1,200	19 (0)
Percentage of high-volume* sites installed/low-volume** sites installed	40%/60%	75%/25%
No. of employees in entire company	160	47
• No. of employees dedicated to LIS development, installation, and support	118	37
No. of billed tests generated annually by labs using this LIS	5,000–4,000,000 (mean, 500,000)	—
Range in No. of workstations in sites operating LIS	1–500 (mean, 30)	2–120 (mean, 20)
Central hardware or service type	HP Business Class	HP, Pentium compatible, ASP
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	4D, C++, Java, HTML	Visual Basic, .Net
Operating system(s)	Windows XP Professional, Vista, Server 2003 Standard Edition, 7	Windows
Databases and tools	4D, SQL	Microsoft SQL server, 7, 2000, Hyperion Interactive Reporting, RightFax
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	none	—
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	1%	available but not installed
• NCCLS POCT-1A standard interface for POCT devices	1%	available but not installed
• Microbiology/Public health microbiology	15%/1%	35%/not available
• Blood bank donor and transfusion	not available	40%
• Surgical pathology/Cytology	4%/5%	35%/35%
• Molecular pathology/Cytogenetics	1%/1%	15%/15%
• Flow cytometry	2%	10%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	90%	90%
• HIS or EMR interface for order entry/results reporting	60%/65%	75%/75%
• HIS or EMR interface for packaging results into PDF format	15%	30%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	25%/not available
• Ad hoc reporting/Rules-based system	100%/100%	100%/35%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	20%	100%
• Compliance checking/Billing and accounts receivable	100%/not available	20%/not available
• Materials management and inventory	20%	available but not installed
• Test partition/Remote faxing and printing	25%/100%	100%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	65%/60%	45%/40%
• Specimen management and tracking	100%	installed
• Compliance and quality assurance tools	100%	installed
• Environmental health/Newborn screening	1%/2%	not available/not available
• HLA (tissue typing)/Stem cell laboratory	not available/not available	not available/not available
Complete LIS application service provider solution	no	yes
ASP for physician order entry and results reporting	yes	yes
Method of charging for ASP service	fixed fee	fixed fee
Client software required	browser based	browser based or requires that software be installed on a client PC
ASP information conduit	operates over the Internet or requires use of a VPN or other dedicated connection (user's option)	operates over the Internet or requires use of a VPN or other dedicated connection
Client contracts supported from data center not operated by client	1	15
How data center is operated	by vendor	by vendor
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	under development	yes
Information systems interfaced	GE Healthcare, Elekta Impac, NextGen, Telcor, WebMD, Healthland, Eclipsys, CPSI, HealthQuest, Keane, Meditech, QuadraMed, others	McKesson, Meditech, Siemens, Allscripts-Misys, CPSI, QuadraMed, Keane, SysCore, Seacoast, Cerner, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics	Beckman Coulter, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics, others
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	1%	20%
LIS provides validation or testing tools	yes (integrated within software—proprietary)	yes (proprietary and blood bank guidelines)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	no/yes	yes (CodeMap)/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	yes
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	no	no
No. of different lab instruments interfaced with LIS	400+	400+ (Psyche Systems and Dawning Technologies for interface)
Source code/User group that meets regularly	escrow/yes (meets via Internet; in person 17 times per year; other manners)	escrow/yes (meets via Internet daily; in person biannually; conference calls)
User can modify screens	yes (offer user-defined report writer and custom programming)	— (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	ODBC-compliant query languages	Microsoft SQL, ODBC compliant
Smallest cost for LIS hardware/software/monthly maintenance	\$12,000/\$20,000/\$250	\$4,000/\$20,000/\$500
Largest cost for LIS hardware/software/monthly maintenance	\$100,000/\$800,000/\$7,000	\$100,000/\$1,400,000/\$15,000
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> expert interfacing and integration capabilities with EMR systems, other host systems, departments, and reference labs easy-to-use rules-based decision support logic and data-mining technology a leader in product development, training, service, and support 	<ul style="list-style-type: none"> full system easily customized to fit any lab workflow; can be fully integrated dynamic, customized reports, statistical analysis, single database and report for clinical, pathology, and molecular data interfaces to any system and instrument easily and affordably
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 15 of 18	Quality Software Systems Jeff Caspari jcaspari@labhealth.com 252 Old Nyack Turnpike, Spring Valley, NY 10977 845-352-4313 www.labhealth.com	SCC Soft Computer Ellie Vahman ellie@softcomputer.com 5400 Tech Data Drive, Clearwater, FL 33760 727-789-0100 www.softcomputer.com
Name of laboratory information system	LabHealth	SoftLab
First ever/most recent LIS installation (based on August 2010 survey deadline)	1984/2010	1985/2010
Last major product release for featured LIS	2010	2010
Total No. of contracts for sites operating LIS	35	341
• Hospital/Independent lab contracts in U.S.	1/27	272/26
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	7/0	9/3
• Contracts for other U.S. sites/Contracts for foreign sites	0/0	0/31 (hospitals)
• No. of these contracts that went live between August 2009–August 2010	4	6
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	0	15 (14/1/0–hospitals)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	4	8
Total No. of sites operating LIS (No. of these sites outside the U.S.)	35	709 (56–Canada)
Percentage of high-volume* sites installed/low-volume** sites installed	70%/30%	60%/40%
No. of employees in entire company	7	1,485
• No. of employees dedicated to LIS development, installation, and support	6	1,473
No. of billed tests generated annually by labs using this LIS	50,000–5,000,000 (mean, 250,000)	150,000–20,000,000+ (mean, 1,000,000)
Range in No. of workstations in sites operating LIS	4–95	10–4,000 (mean, 75)
Central hardware or service type	Dell	IBM pSeries
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	Visual Basic	C, C++, C#, Java
Operating system(s)	Windows Linux	server: IBM AIX (Unix); workstation: Windows XP or higher
Databases and tools	RDBMS	Oracle, Tomcat, OAS, WebLogic, JBoss, ServiceMix
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	—	French, ABN forms available in Spanish
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	90%	100%
• Handheld devices for bedside-positive patient ID	50%	17%
• NCCLS POCT-1A standard interface for POCT devices	25%	15–20%
• Microbiology/Public health microbiology	80%/75%	86%/6%
• Blood bank donor and transfusion	not available	56% transfusion; 4% donor
• Surgical pathology/Cytology	20%/20%	45%/45%
• Molecular pathology/Cytogenetics	not available/not available	4%/4%
• Flow cytometry	not available	15%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	30%	99%
• HIS or EMR interface for order entry/results reporting	20%/20%	85%/88%
• HIS or EMR interface for packaging results into PDF format	20%	installed
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	available but not installed/available but not installed
• Ad hoc reporting/Rules-based system	100%/100%	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	100%	100%
• Compliance checking/Billing and accounts receivable	100%/100%	30%/22%
• Materials management and inventory	100%	installed
• Test partition/Remote faxing and printing	100%/100%	100%/100%
• HIPAA-standard transaction formats	100%	available
• Web-based remote inquiry of reports/Web access for order entry	100%/100%	13%/13%
• Specimen management and tracking	100%	100%
• Compliance and quality assurance tools	80%	25%
• Environmental health/Newborn screening	not available/not available	not available/82%
• HLA (tissue typing)/Stem cell laboratory	not available/not available	1%/in development
Complete LIS application service provider solution	yes	yes
ASP for physician order entry and results reporting	yes	yes
Method of charging for ASP service	fixed fee	fixed fee or transaction based (user's option)
Client software required	browser based	browser based or requires that software be installed on a client PC
ASP information conduit	operates over the Internet	operates over the Internet or requires use of a VPN or other dedicated connection (user's option)
Client contracts supported from data center not operated by client	12	2
How data center is operated	by vendor	by vendor
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	under development	yes
Information systems interfaced	Cerner, Allscripts-Misys, Eclipsys, others	4Medica, Allscripts-Misys, Sunquest, Eclipsys, Atlas, BBGS, CareEvolve, Cerner, Meditech, NextGen, CPSI, Healthland, Keane, Xifin, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott Diagnostics	Beckman Coulter, Siemens, Ortho, Integrated Laboratory Automation Solutions, PVT LabSystems, Olympus, Roche Diagnostics, Abbott, others
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	75%	20%
LIS provides validation or testing tools	no	yes (Model Soft, Camtasia)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	no/yes	yes (Quadax, 3M/Info-X, ICD-9/10, Microscan, LOINC, Vitek, others)/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	yes	no
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	no	yes (99%)
No. of different lab instruments interfaced with LIS	86	400+
Source code/User group that meets regularly	yes/no	escrow/yes (meets via Internet; in person annually; conference call)
User can modify screens	no (offer user-defined report writer and custom programming)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	Access Query Language (AQL)	SQL, ODBC, XML
Smallest cost for LIS hardware/software/monthly maintenance	\$5,000/\$15,000/\$500	\$30,000/\$90,000/\$1,800
Largest cost for LIS hardware/software/monthly maintenance	\$25,000/\$175,000/\$5,000	\$2,000,000/\$18,000,000/\$270,000
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • service response provides same-day solutions • ability to create custom programming quickly and inexpensively • consulting services to help labs generate new income 	<ul style="list-style-type: none"> • innovative, comprehensive, and integrated suite of genetics modules for molecular, cytogenetics, HLA/immunogenetics, biochemistry, flow cytometry • powerful set of integrated laboratory-specific outreach tools, including Web-based lab orders and results, multiple billing packages, more • core lab multi-site and specimen-tracking module
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 16 of 18	Schuyler House Janet Chennault jlc@schuylerhouse.com 27821 Fremont Court, Suite 8, Valencia, CA 91355 800-706-0266 www.schuylab.com	Seacoast Laboratory Data Systems Jim Whitehurst jim@sldsi.com 195 New Hampshire Ave., Portsmouth, NH 03801 603-431-4114 www.sldsi.com
Name of laboratory information system	SchuyLab	SurroundLab Plus
First ever/most recent LIS installation (based on August 2010 survey deadline)	1994/August 2010	—/May 2010
Last major product release for featured LIS	June 2010	February 2010
Total No. of contracts for sites operating LIS	752	26
• Hospital/Independent lab contracts in U.S.	117/251	0/26
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	346/0	0/0
• Contracts for other U.S. sites/Contracts for foreign sites	38 (veterinary, vendor, school)/22 (hospital, POL)	0/0
• No. of these contracts that went live between August 2009–August 2010	22	2
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	2 (2/0/0)	2 (0/2/0)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	22	—
Total No. of sites operating LIS (No. of these sites outside the U.S.)	752 (20–Caribbean, Guam)	26
Percentage of high-volume* sites installed/low-volume** sites installed	5%/95%	95%/5%
No. of employees in entire company	23	40
• No. of employees dedicated to LIS development, installation, and support	23	21
No. of billed tests generated annually by labs using this LIS	5,000–7,000,000 (mean, 10,000)	300,000–4,000,000 (mean, 1,500,000)
Range in No. of workstations in sites operating LIS	1–64 (mean, 3)	3–100+ (mean, 30)
Central hardware or service type	any PC (Dell recommended)	HP
How central server failure is handled	manual intervention necessary to restore operation	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	C	Caché
Operating system(s)	Windows XP, Vista, 7	Windows, Linux
Databases and tools	Pervasive, Btrieve	Caché, SST
System includes full transaction logging	no	—
Languages (other than English) offered on system	ABN forms available in Spanish	none
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	100%
• Bar-coded collection labels	40%	100%
• Handheld devices for bedside-positive patient ID	not available	not available
• NCCLS POCT-1A standard interface for POCT devices	not available	not available
• Microbiology/Public health microbiology	70%/1% (via WHONet)	75%/not available
• Blood bank donor and transfusion	not available	not available
• Surgical pathology/Cytology	10%/10%	not available/0
• Molecular pathology/Cytogenetics	not available/not available	10%/not available
• Flow cytometry	1%	not available
• HIS or EMR interface for admissions/discharge/transfer (ADT)	20%	100%
• HIS or EMR interface for order entry/results reporting	25%/25%	100%/100%
• HIS or EMR interface for packaging results into PDF format	not available	25%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	not available/not available
• Ad hoc reporting/Rules-based system	100%/installed	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	30%	100%
• Compliance checking/Billing and accounts receivable	40%/30%	100%/100%
• Materials management and inventory	not available	not available
• Test partition/Remote faxing and printing	not available/40%	100%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	7%/7%	55%/20%
• Specimen management and tracking	not available	100%
• Compliance and quality assurance tools	not available	65%
• Environmental health/Newborn screening	not available/not available	not available/not available
• HLA (tissue typing)/Stem cell laboratory	not available/not available	not available/not available
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	no	no
Method of charging for ASP service	—	—
Client software required	—	—
ASP information conduit	—	—
Client contracts supported from data center not operated by client	—	—
How data center is operated	—	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	no	no
Information systems interfaced	Allscripts-Misys, Atlas, CareEvolve, Healthland, eClinicalWorks, Emdeon, GE Healthcare, Greenway, McKesson, Medical Manager, NextGen, others	Allscripts-Misys, Meditech, SCC Soft Computer
Total laboratory automation systems to which LIS can interface	Roche Diagnostics, Siemens	Beckman Coulter, Siemens, Olympus America, Roche Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	0	10%
LIS provides validation or testing tools	no	yes (developed in-house)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (CodeMap, others)/yes	yes (CodeMap)/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	no	no
Market modules for other hospital departments? (percent of installs lab only)	no	no
No. of different lab instruments interfaced with LIS	304	200
Source code/User group that meets regularly	escrow/no (available via Facebook)	escrow/no
User can modify screens	yes (offer user-defined report writer)	no (offer custom programming)
Query languages to retrieve information from LIS database	none (export module can deliver data in various formats)	SQL
Smallest cost for LIS hardware/software/monthly maintenance	user-supplied/0/optional	\$1,500/\$50,000/\$1,100
Largest cost for LIS hardware/software/monthly maintenance	\$40,000/\$30,000/\$3,500	\$50,000/\$300,000/\$7,500
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • free SchuyLab Basic: a streamlined version of SchuyLab LIS, with modules that can be upgraded so lab's LIS can grow with lab • easy-to-use, comprehensive LIS, including electronic billing • integrates lab results with other systems; secure Internet access 	<ul style="list-style-type: none"> • commercial laboratory specific • infinitely scalable • complete multi-site capability
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 17 of 18	Siemens Medical Theresa McGillvray-Dodd theresa.mcgillvray-dodd@siemens.com 18724 66th Ave., NE, Kenmore, WA 98028 425-487-0179 www.usa.siemens.com/medical	Starlims Ed Krasovec ed.krasovec@starlims.com 4000 Hollywood Blvd., Suite 515S, Hollywood, FL 33021 954-964-8663 www.starlims.com/?subj=CAP
Name of laboratory information system	Novius Lab	STARLIMS
First ever/most recent LIS installation (based on August 2010 survey deadline)	1983/2010	2001/August 2010
Last major product release for featured LIS	2010	January 2010
Total No. of contracts for sites operating LIS	47	57
• Hospital/Independent lab contracts in U.S.	44/1	2/10
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	0/1	0/22
• Contracts for other U.S. sites/Contracts for foreign sites	0/1	2 (plasma testing, biotech immunology lab)/21 (hospitals, reference labs, biobanks, public health)
• No. of these contracts that went live between August 2009–August 2010	4	13
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	14 (14/0/0)	41 (10/9/22–public health, biobanks, Olympic drug testing, stem cell lab)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	4	23
Total No. of sites operating LIS (No. of these sites outside the U.S.)	74 (1–Canada)	87 (26–U.K., Germany, Romania, China, Singapore, Russia, Jamaica, others)
Percentage of high-volume* sites installed/low-volume** sites installed	45%/55%	44%/56%
No. of employees in entire company	—	215
• No. of employees dedicated to LIS development, installation, and support	—	70
No. of billed tests generated annually by labs using this LIS	80,000–3,000,000 (mean, 650,000)	10,000–110,000,000
Range in No. of workstations in sites operating LIS	6–75 (mean, 20)	5–1,000
Central hardware or service type	IBM xSeries, HP Proliant, Dell	Intel, .Net, Windows 2003
How central server failure is handled	manual intervention necessary to restore operation	system continues uninterrupted
Programming language(s)	C++	C#, .Net
Operating system(s)	Linux	Windows
Databases and tools	Sybase	SQL server, Oracle
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	none	French, Spanish, Chinese, Czech, Polish, Russian, Dutch, Korean, others
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	38%
• Bar-coded collection labels	100%	95%
• Handheld devices for bedside-positive patient ID	10%	available but not installed
• NCCLS POCT-1A standard interface for POCT devices	50%	available but not installed
• Microbiology/Public health microbiology	98%/5%	10%/48%
• Blood bank donor and transfusion	installed	3%
• Surgical pathology/Cytology	installed/installed	3%/7%
• Molecular pathology/Cytogenetics	installed/installed	45%/2%
• Flow cytometry	installed	10%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	95%	9%
• HIS or EMR interface for order entry/results reporting	95%/95%	8%/28%
• HIS or EMR interface for packaging results into PDF format	not available	installed
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	available but not installed/available but not installed
• Ad hoc reporting/Rules-based system	100%/100%	95%/95%
• Management and statistical reporting	100%	95%
• Outreach and commercial laboratory	installed	12%
• Compliance checking/Billing and accounts receivable	installed/installed	5%/45%
• Materials management and inventory	not available	90%
• Test partition/Remote faxing and printing	100%/98%	100%/25%
• HIPAA-standard transaction formats	installed	installed
• Web-based remote inquiry of reports/Web access for order entry	installed/not available	75%/40%
• Specimen management and tracking	installed	95%
• Compliance and quality assurance tools	installed	75%
• Environmental health/Newborn screening	not available/not available	25%/8%
• HLA (tissue typing)/Stem cell laboratory	not available/not available	available but not installed/available but not installed
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	no	no
Method of charging for ASP service	—	—
Client software required	—	—
ASP information conduit	—	—
Client contracts supported from data center not operated by client	—	—
How data center is operated	—	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	no	yes
Information systems interfaced	McKesson, Epic	Orchard, NetSuite, Heron Systems, Mak-System, Haemonetics, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Roche Diagnostics, Tecan	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, PVT LabSystems, Olympus America, Abbott Diagnostics
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	0	20%
LIS provides validation or testing tools	yes (proprietary)	yes (functional requirements specifications, test cases, traceability matrix)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	no/no	yes (any that use Web services or give updates in structured file format)/yes
Software provides indexed field in each test definition for LOINC code	yes	yes
Provide LOINC dictionary for each new installation	no	no
LIS supports use of SNOMED CT	no	yes
Market modules for other hospital departments? (percent of installs lab only)	yes (10%)	no
No. of different lab instruments interfaced with LIS	300 (Siemens OpenLink and Data Innovations for interface)	225+ (Data Innovations for interface)
Source code/User group that meets regularly	no/yes (meets in person annually)	yes/yes (meets via e-mail forums; in person every 12–18 months; others)
User can modify screens	yes (offer user-defined report writer)	yes (offer user-defined report writer and custom programming)
Query languages to retrieve information from LIS database	SQL, ODBC	SQL
Smallest cost for LIS hardware/software/monthly maintenance	—	\$2,000/\$50,000/\$650
Largest cost for LIS hardware/software/monthly maintenance	—	\$250,000/\$1,500,000/\$20,000
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> • workflow efficiency: turnaround time alerts, paperless operations with robust online searches, rules-based automation and knowledge, critical call management, document links • excellent services with six-month implementation cycle times • ranked No. 1 in KLAS LIS ranking for 2008 and 2009 	<ul style="list-style-type: none"> • user-intuitive dashboard provides personalized “at-a-glance” view to key performance metrics and pending tasks via Web browser interface • integrated LIS capabilities with LIMS, clinical study management, biorepository, electronic laboratory notebook, and scientific data-management system functionality • powerful customer-configurable workflow tools allow labs to automate processes and enforce local business rules
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable		

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Laboratory information systems

Part 18 of 18	Sunquest Information Systems Donald Mounce donald.mounce@sunquestinfo.com 250 S. Williams Blvd., Tucson, AZ 85711 877-239-6337 www.sunquestinfo.com	Technidata America Medical Software Ricardo Nunez ricardo.nunez@technidata-web.com 1760 E. River Rd., Suite 302, Tucson, AZ 85718 520-577-2872 www.technidata-web.com
Name of laboratory information system	Sunquest Laboratory	TD-Synergy [†]
First ever/most recent LIS installation (based on August 2010 survey deadline)	1979/2010	1972/July 2010
Last major product release for featured LIS	2009	2009
Total No. of contracts for sites operating LIS	400+	780+
• Hospital/Independent lab contracts in U.S.	350+/40+	7/3
• Clinic or group practice contracts in U.S./Public health lab contracts in U.S.	— [†]	0/1
• Contracts for other U.S. sites/Contracts for foreign sites	—/20+ (hospitals)	1 (research lab center)/768+ (hospital labs, reference labs, others)
• No. of these contracts that went live between August 2009–August 2010	13	13
Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)	6	15 (10/5/0)
• Total No. of contracts (live and not live) signed between August 2009–August 2010	19	23
Total No. of sites operating LIS (No. of these sites outside the U.S.)	990+ (60+—Canada, U.K., Western Europe, Middle East)	780+ (U.K., France, Germany, Spain, Italy, Netherlands, Iceland, others)
Percentage of high-volume* sites installed/low-volume** sites installed	65%/35%	60%/40%
No. of employees in entire company	615	180+
• No. of employees dedicated to LIS development, installation, and support	—	100+
No. of billed tests generated annually by labs using this LIS	500,000+–20,000,000 (mean, 10,000,000)	140,000–20,000,000+ (mean, 2,500,000)
Range in No. of workstations in sites operating LIS	4–500 (mean, 300)	9–829 (mean, 80)
Central hardware or service type	HP, IBM	Sun, Unix, Linux, Windows, IBM, HP (hardware independent)
How central server failure is handled	manual intervention necessary to restore operation or system continues uninterrupted (both options available)	manual intervention necessary to restore operation or system continues uninterrupted (both options available)
Programming language(s)	ANSI Standard M, Caché Script, Standard C/C++, Visual Basic, others	C++, C#, Java
Operating system(s)	AIX, HP-UX, OpenVMS, Linux, Windows XP	Sun, Windows XP, 2008, 2003, 2000, Unix, Linux
Databases and tools	InterSystems Caché	SQL server, Oracle
System includes full transaction logging	yes	yes
Languages (other than English) offered on system	—	French, Spanish, Dutch, Flemish, Italian, German, Chinese, Korean, others
Features/modules (listed as percent of live installs or based on availability)		
• Chemistry and hematology	100%	95%
• Bar-coded collection labels	100%	100%
• Handheld devices for bedside-positive patient ID	30%	6%
• NCCLS POCT-1A standard interface for POCT devices	20%	5%
• Microbiology/Public health microbiology	100%/installed	85%/installed
• Blood bank donor and transfusion	80%	35%
• Surgical pathology/Cytology	65%/50%	40%/35%
• Molecular pathology/Cytogenetics	installed/installed	5%/5%
• Flow cytometry	installed	5%
• HIS or EMR interface for admissions/discharge/transfer (ADT)	99%	85%
• HIS or EMR interface for order entry/results reporting	99%/99%	25%/45%
• HIS or EMR interface for packaging results into PDF format	installed	20%
• HIS or EMR interface for packaging results into CDA1 format/CDA2 format	not available/not available	not available/not available
• Ad hoc reporting/Rules-based system	90%/100%	100%/100%
• Management and statistical reporting	100%	100%
• Outreach and commercial laboratory	75%	55%
• Compliance checking/Billing and accounts receivable	30%/10%	6%/55%
• Materials management and inventory	installed	3%
• Test partition/Remote faxing and printing	100%/90%	100%/100%
• HIPAA-standard transaction formats	100%	100%
• Web-based remote inquiry of reports/Web access for order entry	15%/15%	40%/35%
• Specimen management and tracking	100%	25%
• Compliance and quality assurance tools	100%	100%
• Environmental health/Newborn screening	installed/installed	available but not installed/65%
• HLA (tissue typing)/Stem cell laboratory	installed/installed	installed/5%
Complete LIS application service provider solution	no	no
ASP for physician order entry and results reporting	yes	no
Method of charging for ASP service	subscription	—
Client software required	browser based	—
ASP information conduit	operates over the Internet or requires use of a VPN or other dedicated connection (user's option)	—
Client contracts supported from data center not operated by client	0	—
How data center is operated	—	—
LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:		
• Microbiology data (culture and sensitivity)	yes	yes
• Other reportable diseases (blood, lead, immunology, etc.)	yes	yes
• Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 3.0, July 2009 edition)	yes	yes
Information systems interfaced	McKesson, Cerner, Siemens, Epic, Eclipsys, GE Healthcare, others	Eclipsys, Cerner, McKesson, Allscripts-Misys, Meditech, Healthvision, SCC Soft Computer, Sunquest, Siemens, Sysmex, self-developed, others
Total laboratory automation systems to which LIS can interface	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Integrated Laboratory Automation Solutions, Olympus America, Roche, others	Beckman Coulter, Siemens, Ortho-Clinical Diagnostics, Integrated Laboratory Automation Solutions, Olympus America, others
Percentage of sites that use result-reporting interfaces to external systems based on transmission of fully formatted results (PDF or CDA)	—	20%
LIS provides validation or testing tools	yes (validation scripts)	yes (self-developed instrument emulation, host emulation tools, others)
LIS allows third-party updates of tables and rules/Image capture, display, and reporting	yes (3M)/yes	yes (SNOMED, 3M, NCCLS)/yes
Software provides indexed field in each test definition for LOINC code	no	yes
Provide LOINC dictionary for each new installation	no	—
LIS supports use of SNOMED CT	yes	yes
Market modules for other hospital departments? (percent of installs lab only)	yes (95%)	no
No. of different lab instruments interfaced with LIS	800+	475+
Source code/User group that meets regularly	escrow/yes (meets via Internet; in person annually)	escrow/yes (meets in person annually)
User can modify screens	yes (offer user-defined report writer and custom programming)	yes (offer custom programming)
Query languages to retrieve information from LIS database	SQL	SQL, Access, Excel, Crystal Reports
Smallest cost for LIS hardware/software/monthly maintenance	—	\$6,000/\$30,000/\$6,000
Largest cost for LIS hardware/software/monthly maintenance	—	\$300,000/\$2,000,000/\$33,000
Distinguishing features (supplied by company)	<ul style="list-style-type: none"> complete specimen lifecycle management, including positive patient ID at the point of collection, and full specimen tracking capabilities advanced accessioning allows clients to receive bar-coded samples from outside of enterprise and route and track them without having to relabel 	<ul style="list-style-type: none"> robust rules-based system that is simple to operate and maintain by lab staff; presents status-driven information proactively and in real-time modular, flexible, scalable architecture ISO 9001-2000/13485/13485 CMCADS-certified organization
*generate >500,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day		
**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day		
***HL7 2.5.1, LOINC, SNOMED, etc.		
Note: a dash in lieu of an answer means company did not answer question or question is not applicable	[†] combined with hospital/independent lab contracts in U.S.	[†] formerly distributed by Healthvision

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