# Laboratory information systems

| Part 1 of 17 | Antek HealthWare<br>**Paul Taylor**  ptaylor@antekhealthware.com<br>**228 Business Center Drive**<br>**Reisterstown, MD 21136**<br>**800-359-0911**  www.labdaq.com | Aspyra<br>**Jason Skolnick**  jskolnick@aspyra.com<br>**4360 Park Terrace Drive, Suite 220**<br>**Westlake Village, CA 91361**<br>**818-880-6700/800-437-9000**  www.aspyra.com |
|---|---|---|
| Name of laboratory information system | LabDaq | CyberLab (version 7.2) |
| First ever/most recent LIS installation (based on September survey deadline) | 1991/September 2009 | 1982/August 2009 |
| Last major product release for featured LIS | March 2008 | September 2009 |
| Total No. of contracts for sites operating LIS | 2,331 | 156 |
| • Hospital/independent lab contracts in U.S. | 233/300 | 67/36 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 1,786/7 | 43/2 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/5 (clinics) | 5 (donor, genomic testing, veterinary labs)/3 (reference labs) |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 123 | 4 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 15 (1/2/12 clinics, POLs) | 1 (0/1/0) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 138 | 1 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 2,637 (6–Dubai, Malawi, Uganda, Virgin Islands) | 425+ (25–Jamaica, Malaysia, Singapore) |
| Percentage of high-volume* sites installed/low-volume** sites installed | not tracked | 30%/70% |
| Staff to develop/install & support/other*** in entire firm | 25/67/60 | 20/30/27 |
| Staff to develop/install & support/other*** in LIS division | 13/35/27 | 12/19/27 |
| No. of billed tests generated annually by LIS | not tracked | 15,000–4,000,000 (mean, 650,000) |
| Range in No. of interactive workstations in sites operating LIS | 1–150+ (mean, 9–10) | 3–250 (mean, 40) |
| Central hardware or service type | Intel/AMD | Dell, HP |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | Delphi, C++, ASP .Net | C, C++, HTML, Java, Cobol |
| Operating system(s) | Windows 2003, 2008, XP, Vista | Windows, Linux |
| Databases and tools | Oracle | SQL, Oracle |
| System includes full transaction logging? | yes | yes |
| Languages (other than English) offered on system | none | user can define screen labels and error messages in any language |
| 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 | 5% |
| • NCCLS POCT-1A standard interface for POCT devices | not available | 15% |
| • Microbiology/public health microbiology | 15%/2% | 100%/2% |
| • Blood bank donor and transfusion | not available | via interface to Mediware and Wyndgate blood bank systems |
| • Surgical pathology/cytology | not available/not available | 10%/90% |
| • Molecular pathology/cytogenetics | not available/not available | not available/not available |
| • Flow cytometry | 2% | 60% |
| • HIS or EMR interface for A/D/T | 55% | 75% |
| • HIS or EMR interface for order entry/results reporting | 28%/55% | 60%/70% |
| • HIS or EMR interface for packaging results into PDF format | 40% | 5% |
| • 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 | 25% | 100% |
| • Compliance checking/billing and accounts receivable | 95%/not available | 100%/25% via interface to third-party billing system |
| • Materials management and inventory | not available | not available (but planned) |
| • Test partition/remote faxing and printing | 20%/55% | 100%/100% |
| • HIPAA-standard transaction formats | 100% | 100% |
| • Web-based remote inquiry of reports/Web access for order entry | 20%/15% | 60%/50% |
| • Specimen management and tracking | 100% | available in 2010 |
| • Compliance and quality assurance tools | 100% | 100% |
| • HLA (tissue typing) | not available | 5% |
| • Environmental health/newborn screening | not available/installed | 2%/15% |
| • Stem cell laboratory | not available | 2% |
| 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 | 218 | — |
| How data center is operated | by vendor | — |
| LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | available but not in use | 1 site |
| • Other reportable diseases | 14 sites | 2 sites |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | available but not in use | 2 sites |
| Information systems interfaced | Cerner, CPSI, Healthland, McKesson, Meditech, Siemens, Misys, GE Healthcare, Allscripts, eClinicalWorks, Greenway, IKnowMed, NextGen, others | Allscripts, McKesson, Siemens, Cerner, Sunquest, Meditech, CPSI, Healthland, Eclipsys, NextGen, VitalWorks, Atlas, Telcor, Misys, others |
| Laboratory automation systems interfaced | Beckman Coulter, Siemens, Roche | planned to Beckman Coulter, Sysmex, Siemens, Ortho, Olympus, Roche, others |
| LIS provides validation or testing tools? | yes (proprietary) | yes (test environment, testing scripts) |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | yes (Quest, LabCorp, CodeMap)/yes | yes (ICD-9 table from CMS)/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 | yes (65%) |
| No. of different lab instruments interfaced with LIS | 450+ | 500+ |
| Source code?/User group that meets regularly? | escrow/yes (meets via Internet; in person four times per year) | escrow/yes (meets via Webinars biannually; in person; monthly calls; forums) |
| User can modify screens? | no (offer user-defined report writer, custom programming) | yes (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | SQL | SQL (ODBC compliant) |
| Smallest cost for LIS hardware/software/monthly maintenance | $1.7k/$6k/$0.1k | — |
| Largest cost for LIS hardware/software/monthly maintenance | $75k/$500k/$5k | — |
| Distinguishing features (supplied by vendor) | • rules can be created for ordering, processing results, results delivery, billing, and more<br>• complete system integration with EMR, billing, HIS, and reference laboratories<br>• experienced and responsive support staff; 98 percent of calls are answered by support personnel | • more than 30 years of experience working with clinical reference, hospital, and clinic laboratories and offering cost-effective hybrid LISs<br>• user-defined, rules-based system offering robust functionality based on user policies and procedures<br>• integrated with Aspyra's RIS and PACS for enterprise-wide data and image sharing |

*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
***other=sales, marketing, administration, and other company functions
Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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

Survey editors: Raymond D. Aller, MD, and Hal Weiner

# Laboratory information systems

| Part 2 of 17 | Cerner Corp.<br>**Lori Cross**  lori.cross@cerner.com<br>**2800 Rockcreek Parkway**<br>**Kansas City, MO 64117**<br>**816-201-1024**  www.cerner.com | Clinical Software Solutions<br>**Kimberly Mays**  sales@clin1.com<br>**20940 E. Mewes Rd.**<br>**Queen Creek, AZ 85142**<br>**800-570-0474**  www.clin1.com |
|---|---|---|
| Name of laboratory information system | Cerner Millennium PathNet | Clin1 Laboratory† |
| First ever/most recent LIS installation (based on September survey deadline) | 1982/August 2009 | 1988/August 2009 |
| Last major product release for featured LIS | August 2009 | August 2009 |
| Total No. of contracts for sites operating LIS | 301 | 200+ |
| • Hospital/independent lab contracts in U.S. | 263/1 | 50+/140+ |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 1/1 | 10+/— |
| • Other contracted U.S. sites/contracts for foreign sites | 0/35 (hospitals) | 3/— |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 29 | 4 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 35 (35/0/0) | 1 (1/0/0) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | — | — |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 301 (35–Canada, Saudi Arabia, Germany, U.K., Singapore, others) | — |
| Percentage of high-volume* sites installed/low-volume** sites installed | 80%/20% | 10%/90% |
| Staff to develop/install & support/other*** in entire firm | 1,609/3,277/2,618 | 3/5/3 |
| Staff to develop/install & support/other*** in LIS division | 133/141/146 | 3/5/3 |
| No. of billed tests generated annually by LIS | <500,000–21,000,000 | — |
| Range in No. of interactive workstations in sites operating LIS | not tracked | 1–50 |
| Central hardware or service type | HP, Compaq, IBM RS/6000 | Dell, IBM compatible |
| How central server failure is handled | system continues uninterrupted | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | Java, Visual Basic, C++, Visual C | 4GL |
| Operating system(s) | HP-UX, AIX, VMS | Windows |
| Databases and tools | Oracle | 4GL |
| System includes full transaction logging? | yes | yes |
| Languages (other than English) offered on system | French, German, Spanish | — |
| Features/modules (listed as percent of live installs or based on availability) | | |
| • Chemistry and hematology | 100% | 95% |
| • Bar-coded collection labels | 100% | 55% |
| • Handheld devices for bedside-positive patient ID | 10% | 30% |
| • NCCLS POCT-1A standard interface for POCT devices | installed | 5% |
| • Microbiology/public health microbiology | 100%/installed | 25%/— |
| • Blood bank donor and transfusion | 75% | — |
| • Surgical pathology/cytology | 75%/75% | 5%/5% |
| • Molecular pathology/cytogenetics | 10%/10% | — |
| • Flow cytometry | 50% | — |
| • HIS or EMR interface for A/D/T | 100% | 75% |
| • HIS or EMR interface for order entry/results reporting | 100%/100% | 75%/100% |
| • HIS or EMR interface for packaging results into PDF format | installed | 45% |
| • HIS or EMR interface for packaging results into CDA1 format/CDA2 format | not available/in development | 75%/— |
| • Ad hoc reporting/rules-based system | 100%/100% | 90%/90% |
| • Management and statistical reporting | 100% | 90% |
| • Outreach and commercial laboratory | 50% | 40% |
| • Compliance checking/billing and accounts receivable | installed/10% | 75%/10% |
| • Materials management and inventory | installed | 15% |
| • Test partition/remote faxing and printing | installed/installed | 100%/75% |
| • HIPAA-standard transaction formats | 100% | 100% |
| • Web-based remote inquiry of reports/Web access for order entry | less than 10%/less than 10% | 30%/30% |
| • Specimen management and tracking | 100% | 90% |
| • Compliance and quality assurance tools | 100% | 100% |
| • HLA (tissue typing) | 10% | — |
| • Environmental health/newborn screening | installed/installed | — |
| • Stem cell laboratory | installed | — |
| Complete LIS application service provider solution? | yes | yes |
| ASP for physician order entry and results reporting? | yes | yes |
| Method of charging for ASP service | transaction based | 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 Internet or requires use of a VPN or other dedicated connection |
| Client contracts supported from data center not operated by client | 279 | — |
| How data center is operated | by vendor | by vendor |
| LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | 48 sites | 3 sites |
| • Other reportable diseases | 48 sites | available but not in use |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | 1 site | available but not in use |
| Information systems interfaced | McKesson, Siemens, Epic, Eclipsys, Meditech, others | Siemens, Healthland, Medical Manager, Allscripts, MedicaLogic, others |
| Laboratory automation systems interfaced | Beckman Coulter, Sysmex, Siemens, Ortho, Olympus, Roche, Abbott, others | Beckman Coulter, Sysmex, Siemens, Ortho, Olympus, Roche, Abbott, others |
| LIS provides validation or testing tools? | yes (certification guidelines, documentation, consulting services) | — |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | no/yes | —/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 (25%) |
| No. of different lab instruments interfaced with LIS | 811 | 300+ |
| Source code?/User group that meets regularly? | escrow/yes (meets via Internet quarterly; in person annually) | —/yes (meets via Internet; in person) |
| User can modify screens? | yes (offer user-defined report writer, custom programming) | no (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | Cerner Discern Explorer | any ODBC-compliant reporting tool, including SQL, MS Access, Crystal Reports |
| Smallest cost for LIS hardware/software/monthly maintenance | — | —/$10k/percent of total |
| Largest cost for LIS hardware/software/monthly maintenance | — | —/$250k/percent of total |
| Distinguishing features (supplied by vendor) | • 30 years of continuous innovation in the LIS market<br>• support for increased efficiencies through key capabilities such as online secondary review (pre- and post-verification), autoverification throughout multiple departments, expert rules, integrated document imaging for requisitions, advanced quality control, more<br>• support for the entire clinical lab within a single LIS and EMR architecture | • versatile and flexible for any size facility<br>• Web access and customization available<br>• fully integrated with other hospital departments and systems |

*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
***other=sales, marketing, administration, and other company functions
Note: a dash in lieu of an answer means company did not answer question or question is not applicable

†formerly CSSWin LIS

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# Laboratory information systems

| Part 3 of 17 | Clinlab<br>Allen Wilson   sales@clinlabinc.com<br>2411 E. Graves Ave., Suite 1<br>Orange City, FL 32763<br>800-487-5227   www.clinlabinc.com | Comp Pro Med<br>Ken Beerman   kbeerman@compromed.com<br>3418 Mendocino Ave.<br>Santa Rosa, CA 95403<br>800-276-4522   www.compromed.com |
|---|---|---|
| Name of laboratory information system | ClinLab | Polytech |
| First ever/most recent LIS installation (based on September survey deadline) | 1987/July 2009 | 1981/July 2009 |
| Last major product release for featured LIS | July 2009 | July 2009 |
| Total No. of contracts for sites operating LIS | 50 | 99 |
| • Hospital/independent lab contracts in U.S. | 5/15 | 26/6 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 19/1 | 36/0 |
| • Other contracted U.S. sites/contracts for foreign sites | 9/1 (hospital) | 1 (veterinary)/30 (national and regional hospital labs) |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 2 | 15 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 1 (0/1/0) | 1 (1/0/0) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 2 | 16 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 50 (1–Saudi Arabia) | 133 (40–Eritrea, Ethiopia, Phillipines, Bhutan) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 10%/90% | 13%/87% |
| Staff to develop/install & support/other*** in entire firm | 2/3/2 | 6/4/5 |
| Staff to develop/install & support/other*** in LIS division | 2/3/2 | — |
| No. of billed tests generated annually by LIS | 25,000–500,000 (mean, 100,000) | 30,000–110,000 (mean, 50,000) |
| Range in No. of interactive workstations in sites operating LIS | 2–100 (mean, 15) | 1–38 (mean, 8) |
| Central hardware or service type | PC based | any (client supplied) |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | system continues uninterrupted |
| Programming language(s) | Microsoft .Net, Delphi | C++ |
| Operating system(s) | all Windows | Windows Vista, XP, NT, 2000, 98 |
| Databases and tools | Sybase Advantage, SQL | Pervasive |
| System includes full transaction logging? | depends on database, server customer chooses | 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 | not available | available but not installed |
| • NCCLS POCT-1A standard interface for POCT devices | not available | available but not installed |
| • Microbiology/public health microbiology | 90%/10% | 13%/available but not installed |
| • Blood bank donor and transfusion | not available | not available |
| • Surgical pathology/cytology | available but not installed/available but not installed | not available/2% |
| • Molecular pathology/cytogenetics | available but not installed/available but not installed | not available/not available |
| • Flow cytometry | installed | 2% |
| • HIS or EMR interface for A/D/T | 80% | 71% |
| • HIS or EMR interface for order entry/results reporting | 80%/80% | 38%/47% |
| • HIS or EMR interface for packaging results into PDF format | 90% | not available |
| • 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%/available but not installed | 100%/100% |
| • Management and statistical reporting | 100% | 100% |
| • Outreach and commercial laboratory | 60% | 22% |
| • Compliance checking/billing and accounts receivable | 100%/not available | 100%/67% |
| • Materials management and inventory | not available | not available |
| • Test partition/remote faxing and printing | installed/60% | 100%/95% |
| • HIPAA-standard transaction formats | 100% | not available |
| • Web-based remote inquiry of reports/Web access for order entry | 60%/60% | installed/27% |
| • Specimen management and tracking | 10% | not available |
| • Compliance and quality assurance tools | 30% | 100% |
| • HLA (tissue typing) | not available | not available |
| • Environmental health/newborn screening | installed/not available | not available/not available |
| • Stem cell laboratory | 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 provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | 1 site | not available |
| • Other reportable diseases | 1 site | not available |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | 1 site | not available |
| Information systems interfaced | Meditech, Cerner, Atlas, CSS, Misys, CareEvolve, Allscripts, eClinicalWorks, GE Healthcare, Pyramed, Medical Manager, others | GE Healthcare, Siemens, Intermed, Healthland, eClinicalWorks, Healthmatics, Misys, Medical Manager, Cerner, VitalWorks, others |
| Laboratory automation systems interfaced | Beckman Coulter, Siemens, Olympus America, Roche | no |
| LIS provides validation or testing tools? | no | no |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | no/no | yes/no |
| 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 | no |
| Market modules for other hospital departments? (percent of installs lab only) | no | no |
| No. of different lab instruments interfaced with LIS | 300+ | 230+ |
| Source code?/User group that meets regularly? | escrow/no | escrow/no |
| User can modify screens? | yes (offer user-defined report writer, custom programming) | yes (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | SQL | SQL, Pervasive, ODBC, built-in query capability |
| Smallest cost for LIS hardware/software/monthly maintenance | —/$10k/$0.125k | 0/$15k/$0.15k |
| Largest cost for LIS hardware/software/monthly maintenance | —/$300k/— | 0/$145k/$1.29k |
| Distinguishing features (supplied by vendor) | • custom software<br>• external system interface flexibility<br>• specialized support | • extensive rules-based capabilities allow customization of system functionality<br>• standard HL-7-based interfacing capabilities to other systems<br>• requires little to no IT department support; 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
***other=sales, marketing, administration, and other company functions
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 4 of 17 | CPSI<br>Sales Department  sales@cpsinet.com<br>6600 Wall St.<br>Mobile, AL 36695<br>800-711-2774  www.cpsinet.com | CSS (Computer Service and Support)<br>Jim O'Neill Jr.  jimjr@csslis.com<br>2106 New Rd., Building E-6<br>Linwood, NJ  08221<br>609-653-6444  www.csslis.com |
|---|---|---|
| Name of laboratory information system | CPSI System | CLS 2000 |
| First ever/most recent LIS installation (based on September survey deadline) | 1986/September 2009 | 1980/August 2009 |
| Last major product release for featured LIS | February 2009 | September 2009 |
| Total No. of contracts for sites operating LIS | 414 | 99 |
| • Hospital/independent lab contracts in U.S. | 413/1 | 0/79 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 0/0 | 16/2 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/0 | 1 (contract research)/1 (reference lab) |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 35 | 7 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 11 (11/0/0) | 2 (0/2/0) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 35 | 9 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 414 (0) | 99 (1–Canada) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 1%/99% | 42%/58% |
| Staff to develop/install & support/other*** in entire firm | 152/503/340 | 6/9/5 |
| Staff to develop/install & support/other*** in LIS division | 49/220/0 | 6/9/5 |
| No. of billed tests generated annually by LIS | 148,000–665,000 (mean, 310,000) | 22,587–3,387,261 (mean, 757,231) |
| Range in No. of interactive workstations in sites operating LIS | 6–500 (mean, 100) | 2–58 (mean, 15) |
| Central hardware or service type | IBM x3850 | IBM |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | Visual C++, AcuCobol | C++ |
| Operating system(s) | Red Hat Linux | AIX 6.1 |
| Databases and tools | Acucorp | MS SQL, MySQL, Lab Base |
| System includes full transaction logging? | no | 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% | not available |
| • NCCLS POCT-1A standard interface for POCT devices | 1% | not available |
| • Microbiology/public health microbiology | 100%/0 | 86%/not available |
| • Blood bank donor and transfusion | 0 | not available |
| • Surgical pathology/cytology | 1%/1% | 12%/31% |
| • Molecular pathology/cytogenetics | 0/0 | not available/not available |
| • Flow cytometry | 0 | not available |
| • HIS or EMR interface for A/D/T | 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%/not available |
| • 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 | not available | 100% |
| • Compliance and quality assurance tools | 100% | 100% |
| • HLA (tissue typing) | 0 | 0 |
| • Environmental health/newborn screening | 0/0 | 0/0 |
| • Stem cell laboratory | 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 | browser based |
| ASP information conduit | operates over Internet or requires use of a VPN or other dedicated connection | operates over the Internet |
| Client contracts supported from data center not operated by client | 26 | 39 |
| How data center is operated | by vendor | by vendor |
| LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | not available | not available |
| • Other reportable diseases | not available | not available |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | not available | not available |
| Information systems interfaced | — | Aspyra, McKesson, Misys, SCC Soft Computer, eClinicalWorks, Medisoft, GE Healthcare, NextGen, others |
| Laboratory automation systems interfaced | planned to Beckman Coulter, Sysmex, Siemens, A&T Corp., Roche | Beckman Coulter, Sysmex, Siemens, Olympus America, Roche, Abbott |
| LIS provides validation or testing tools? | no | yes (Ingenix) |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | yes (Micromedex, 3M NEBO, Caremedics)/yes | yes (Ingenix, CSS)/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 (2%) | no |
| No. of different lab instruments interfaced with LIS | 357 (Dawning Technologies for interface) | ~350 |
| Source code?/User group that meets regularly? | escrow/yes (online forum; eight regional and one national meeting per year) | escrow/no |
| User can modify screens? | yes (offer user-defined report writer, 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 | $95.586k/$250k/$4.583k | $7.5k/$15k/$0.25k |
| Largest cost for LIS hardware/software/monthly maintenance | $496.986k/$643.353k/$7.934k | $50k/$200k/$2.7k |
| Distinguishing features (supplied by vendor) | • fully integrated EMR HIS/LIS<br>• build libraries and data dictionaries as a standard part of installation and conversion<br>• on-site training and support for all end users (not train the trainer) | • end-to-end reference lab automation, including comprehensive Web-based outreach, production-oriented LIS, and full billing software<br>• patient payment portal allows patients to see their statements online and pay electronically using a credit card or electronic check<br>• StatisticsViewGenerator data warehouse with ad hoc reporting across all LIS and billing data |

*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
***other=sales, marketing, administration, and other company functions
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 17 | Custom Software Systems<br>DeWitt Rhaly  dewitt@css-corporate.com<br>7012 Westbelt Drive<br>Nashville, TN 37209<br>615-350-8111  www.css-corporate.com | Epic<br>Conan Noronha  conan@epic.com<br>1979 Milky Way<br>Verona, WI 53593<br>608-271-9000  www.epic.com |
|---|---|---|
| Name of laboratory information system | StarLab | EpicLab Laboratory Information System |
| First ever/most recent LIS installation (based on September survey deadline) | 1984/April 2005 | 1980/September 2008 |
| Last major product release for featured LIS | — | August 2009 |
| Total No. of contracts for sites operating LIS | 19 | 3 |
| • Hospital/independent lab contracts in U.S. | 17/1 | 2/0 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 1/0 | 1/0 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/0 | 0/0 |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | — | 0 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 1 (1/0/0) | 61 (60/0/1–Wisconsin State Lab of Hygiene) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | — | 16 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 19 | 34 (0) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 5%/95% | 3%/97% |
| Staff to develop/install & support/other*** in entire firm | 8/9/12 | 1,450/1,700/150 |
| Staff to develop/install & support/other*** in LIS division | 4/6/3 | 25/14/1 |
| No. of billed tests generated annually by LIS | — | 0 |
| Range in No. of interactive workstations in sites operating LIS | 2–80 | 1–21 |
| Central hardware or service type | IBM xSeries | HP 9000, HP Integrity, Sun Sparc, IBM p5 Series |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | system continues uninterrupted |
| Programming language(s) | Cobol | Visual Basic, Caché, .Net |
| Operating system(s) | Linux | Unix, Windows |
| Databases and tools | T-ISAM | Chronicles Extended Relational Database Management System |
| 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 | 80% | 100% |
| • Handheld devices for bedside-positive patient ID | 5% | available but not installed |
| • NCCLS POCT-1A standard interface for POCT devices | not available | available but not installed |
| • Microbiology/public health microbiology | 10%/— | 100%/available but not installed |
| • Blood bank donor and transfusion | not available | not available |
| • Surgical pathology/cytology | installed/installed | available but not installed/available but not installed |
| • Molecular pathology/cytogenetics | — | not available/not available |
| • Flow cytometry | — | available in 2011 |
| • HIS or EMR interface for A/D/T | 80% | 100% |
| • HIS or EMR interface for order entry/results reporting | 80%/80% | 100%/100% |
| • HIS or EMR interface for packaging results into PDF format | installed | available but not 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% | available but not installed |
| • Compliance checking/billing and accounts receivable | 100%/10% | not available/100% |
| • 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 | available but not installed/available but not installed |
| • Specimen management and tracking | installed | 100% |
| • Compliance and quality assurance tools | — | 100% |
| • HLA (tissue typing) | — | not available |
| • Environmental health/newborn screening | — | not available/not available |
| • Stem cell laboratory | — | 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 provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | — | not available |
| • Other reportable diseases | — | not available |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | — | not available |
| Information systems interfaced | — | integrated with EpicCare inpatient clinical system, EpicCare ambulatory EMR |
| Laboratory automation systems interfaced | planned | available through middleware such as Data Innovations |
| LIS provides validation or testing tools? | no | yes (Data Integrity, testing toolkits) |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | no/no | yes (LOINC)/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 (20%) | yes (0) |
| No. of different lab instruments interfaced with LIS | 42 (Dawning Technologies for interface) | 15 (Data Innovations or customer's choice for interface) |
| Source code?/User group that meets regularly? | escrow/no | yes/yes (meets in person annually) |
| User can modify screens? | yes (offer custom programming) | yes (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | Microsoft Access, other PC-based tools | Reporting Workbench, SQL Report Writer, ODBC Open Access |
| Smallest cost for LIS hardware/software/monthly maintenance | $25k/$35k/$0.6k | — |
| Largest cost for LIS hardware/software/monthly maintenance | $250k/$350k/$6k | — |
| Distinguishing features (supplied by vendor) | • standardized screens and functions make system easy to use<br>• total system integration eliminates duplication of work effort<br>• developed from the clinical perspective with an emphasis on results reporting to improve efficiency | • part of integrated suite of applications, providing seamless data transfer from LIS to the patient's chart without the need for interfaces<br>• includes an integrated anatomic pathology module that communicates with the clinical module, allowing seamless workflows between core lab, microbiology, surgical pathology, and cytology labs<br>• customer base has the opportunity to contribute to the design and direction of the application |

*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
***other=sales, marketing, administration, and other company functions
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 17 | eTeleNext<br>**Joseph Nollar**  sales@etelenext.com<br>**213 Technology Drive**<br>**Irvine, CA 92618**<br>**949-365-0952**  www.etelenext.com | Fletcher-Flora Health Care Systems<br>**Terry Watson**  terryw@fletcher-flora.com<br>**1580 Orangethorpe Way**<br>**Anaheim, CA 92801**<br>**800-777-1471**  www.fletcher-flora.com |
|---|---|---|
| Name of laboratory information system | eTeleNext LIS | FFlex eSuite LIS† |
| First ever/most recent LIS installation (based on September survey deadline) | 2004/June 2009 | 1972/2009 |
| Last major product release for featured LIS | February 2009 | May 2009 |
| Total No. of contracts for sites operating LIS | 14 | 126 |
| • Hospital/independent lab contracts in U.S. | 0/14 | 18/23 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 0/0 | 79/0 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/0 | 2 (prison laboratories, equipment vendors)/4 |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 2 | 60 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 2 (0/2/0) | 16 (1/4/11–group practices, clinics, county health) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 16 | 76 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 14 (0) | 250+ (5–Bahamas, Virgin Islands) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 30%/70% | 30%/70% |
| Staff to develop/install & support/other*** in entire firm | 9/3/3 | 9/14.5/12.5 |
| Staff to develop/install & support/other*** in LIS division | 9/3/3 | 9/14.5/12.5 |
| No. of billed tests generated annually by LIS | 12,845–104,341 | 10,000–5,000,000 |
| Range in No. of interactive workstations in sites operating LIS | 40–175 (mean, 108) | 1–75 |
| Central hardware or service type | IBM, Dell, others | Dell |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | manual intervention necessary to restore operation |
| Programming language(s) | C++ .Net | Java |
| Operating system(s) | Windows server 2003 | Linux, Windows |
| Databases and tools | SQL | Oracle, Microsoft SQL server, Microsoft SQL Express, MySQL, Unify |
| 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 | not available | not available |
| • NCCLS POCT-1A standard interface for POCT devices | not available | not available |
| • Microbiology/public health microbiology | 30%/10% | 10%/not available |
| • Blood bank donor and transfusion | 10% | not available |
| • Surgical pathology/cytology | 95%/85% | not available/not available |
| • Molecular pathology/cytogenetics | 95%/95% | not available/available but not installed |
| • Flow cytometry | 95% | not available |
| • HIS or EMR interface for A/D/T | available but not installed | 70% |
| • HIS or EMR interface for order entry/results reporting | 65%/80% | 40%/60% |
| • HIS or EMR interface for packaging results into PDF format | 80% | 100% |
| • HIS or EMR interface for packaging results into CDA1 format/CDA2 format | 10%/5% | not available/not available |
| • Ad hoc reporting/rules-based system | 10%/100% | 30%/100% |
| • Management and statistical reporting | 100% | 100% |
| • Outreach and commercial laboratory | 55% | 75% |
| • Compliance checking/billing and accounts receivable | 100%/25% | 40%/10% |
| • Materials management and inventory | not available | not available |
| • Test partition/remote faxing and printing | —/100% | 75%/95% |
| • HIPAA-standard transaction formats | 100% | 100% |
| • Web-based remote inquiry of reports/Web access for order entry | 100%/40% | 85%/100% |
| • Specimen management and tracking | 100% | 60% |
| • Compliance and quality assurance tools | 40% | 100% |
| • HLA (tissue typing) | not available | not available |
| • Environmental health/newborn screening | not available/not available | not available/not available |
| • Stem cell laboratory | not available | not available |
| 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 |
| 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 |
| Client contracts supported from data center not operated by client | 2 | 4 |
| How data center is operated | by a third party | by a third party |
| LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | available but not in use | not available |
| • Other reportable diseases | available but not in use | not available |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | available but not in use | not available |
| Information systems interfaced | Cortex, GE Healthcare, Misys, Meditech, Cerner | McKesson, Cerner, Misys, GE Healthcare, Epic, iMedica, NextGen, others |
| Laboratory automation systems interfaced | available but not yet operational to Beckman Coulter, Sysmex, Siemens, Olympus America, Roche, Abbott, Bayer | Roche |
| LIS provides validation or testing tools? | yes (proprietary) | yes (internally developed) |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | no/yes | yes (Yost Engineering, 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? | yes | yes |
| Market modules for other hospital departments? (percent of installs lab only) | no | no |
| No. of different lab instruments interfaced with LIS | 24 (Data Innovations and Dawning Technologies for interface) | 500+ |
| Source code?/User group that meets regularly? | escrow/yes (meets via Internet every six months) | escrow/no |
| User can modify screens? | yes (offer user-defined report writer, custom programming) | yes (offer user-defined report writer) |
| Query languages to retrieve information from LIS database | SQL, ODBC, XML, HL7 | SQL |
| Smallest cost for LIS hardware/software/monthly maintenance | —/$50k/$0.5k | $0.7k/$3.5k/$0.103k |
| Largest cost for LIS hardware/software/monthly maintenance | —/$299k/$2k | —/$200k/$1.533k |
| Distinguishing features (supplied by vendor) | • advanced Web-based technology<br>• customized, user-defined reporting solution<br>• proven outreach solution | • many Web-based modules; provide outreach and integrate multiple sites, systems, and devices seamlessly, securely, and in real time<br>• 30 years in LIS industry with more than 1,500 LIS customers<br>• proven Web-based technology that can be scaled from small POLs to the largest independent labs |

*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
***other=sales, marketing, administration, and other company functions
*Note: a dash in lieu of an answer means company did not answer question or question is not applicable*

†formerly encaLaber

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# Laboratory information systems

| Part 7 of 17 | Fletcher-Flora Health Care Systems<br>**Terry Watson**  terryw@fletcher-flora.com<br>**1580 Orangethorpe Way**<br>**Anaheim, CA 92801**<br>**800-777-1471**  www.fletcher-flora.com | GE Healthcare<br>**Janet Landsberg**  janet.landsberg@ge.com<br>**3100 Steeles Ave. E, Suite 900**<br>**Markham, Ontario L3R 8T3 Canada**<br>**905-413-9032**  www.gehealthcare.com/centricitylaboratory |
|---|---|---|
| **Name of laboratory information system** | LabPak LIS | Centricity Laboratory† |
| **First ever/most recent LIS installation (based on September survey deadline)** | 1972/May 2008 | 1990/2009 |
| **Last major product release for featured LIS** | spring 2008 | 2009 |
| **Total No. of contracts for sites operating LIS** | 1,460 | 43 |
| • Hospital/independent lab contracts in U.S. | 230/36 | 14/3 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 1,124/0 | 1/0 |
| • Other contracted U.S. sites/contracts for foreign sites | 40/30 (hospitals, POLs) | 0/25 |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 3 | 1 |
| **Contracts signed but LIS not yet operational (hospitals/independent labs/other sites)** | 0 | 0 |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 0 | 1 |
| **Total No. of sites operating LIS (No. of these sites outside the U.S.)** | 1,500+ (30–Canada, Bahamas) | 220+ (sites in Australia, New Zealand, U.K., Canada, India, Hong Kong, others) |
| **Percentage of high-volume* sites installed/low-volume** sites installed** | 0/100% | 75%/25% |
| **Staff to develop/install & support/other*** in entire firm** | 9/14.5/12.5 | 45,000 total |
| **Staff to develop/install & support/other*** in LIS division** | 9/14.5/12.5 | 31/41/6 |
| **No. of billed tests generated annually by LIS** | 2,000–3,000,000 | not tracked |
| **Range in No. of interactive workstations in sites operating LIS** | 5–40 | 20–500+ (mean, 200) |
| **Central hardware or service type** | Dell | IBM RS/6000, Sun Solaris, HP-UX |
| **How central server failure is handled** | manual intervention necessary to restore operation | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| **Programming language(s)** | C++, Java | C, C++, 4GL, Java |
| **Operating system(s)** | Windows | Unix |
| **Databases and tools** | Pervasive | Unify Dataserver |
| **System includes full transaction logging?** | no | 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% | 95% |
| • Bar-coded collection labels | 60% | 100% |
| • Handheld devices for bedside-positive patient ID | not available | 8% |
| • NCCLS POCT-1A standard interface for POCT devices | not available | installed |
| • Microbiology/public health microbiology | 30%/not available | 80%/installed |
| • Blood bank donor and transfusion | not available | 12% |
| • Surgical pathology/cytology | not available/installed | 40%/40% |
| • Molecular pathology/cytogenetics | not available/available but not installed | installed/installed |
| • Flow cytometry | not available | installed |
| • HIS or EMR interface for A/D/T | 50% | 100% |
| • HIS or EMR interface for order entry/results reporting | 30%/75% | 80%/90% |
| • 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 | 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 | 10% | installed |
| • Compliance checking/billing and accounts receivable | 100%/50% | installed/90% |
| • Materials management and inventory | 0 | not available |
| • Test partition/remote faxing and printing | 20%/100% | 100%/installed |
| • HIPAA-standard transaction formats | — | 100% |
| • Web-based remote inquiry of reports/Web access for order entry | 20%/20% | installed/not available |
| • Specimen management and tracking | 0 | 100% |
| • Compliance and quality assurance tools | 100% | installed |
| • HLA (tissue typing) | not available | not available |
| • Environmental health/newborn screening | not available/not available | not available/not available |
| • Stem cell laboratory | 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 or 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 provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for:** | | |
| • Microbiology data | — | installed (HL7 2.3, 2.4, 2.5 supported)†† |
| • Other reportable diseases | — | installed (HL7 2.3, 2.4, 2.5 supported)†† |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | — | installed (HL7 2.3, 2.4, 2.5 supported)†† |
| **Information systems interfaced** | TechTime, CPSI, Healthland, QSI, Experior, iMedica, eClinicalWorks, Medical Manager, NextGen, GE Healthcare, Emdeon, Pyramed, others | Affinity, Epic, McKesson, GE Healthcare, Meditech, Siemens, MediSolution, others |
| **Laboratory automation systems interfaced** | no | Beckman Coulter, Siemens, Ortho, Roche, Abbott, Bayer, Labtronics |
| **LIS provides validation or testing tools?** | no | no |
| **LIS allows third-party updates of tables and rules/image capture, display, and reporting?** | no/no | yes (from any vendor that can provide data in GE-specified 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?** | yes | no |
| **Market modules for other hospital departments? (percent of installs lab only)** | no | yes (80%) |
| **No. of different lab instruments interfaced with LIS** | 500+ | 300+ (Data Innovations and GE for interface) |
| **Source code?/User group that meets regularly?** | no/no | escrow/yes (meets in person every 12 to 18 months) |
| **User can modify screens?** | yes (offer user-defined report writer, custom programming) | yes (offer custom programming) |
| **Query languages to retrieve information from LIS database** | — | SQL, ODBC-compliant query tools and languages |
| **Smallest cost for LIS hardware/software/monthly maintenance** | — | $100k/$100k/$1.5k |
| **Largest cost for LIS hardware/software/monthly maintenance** | — | $250k/$1.5m/$22.5k |
| **Distinguishing features (supplied by vendor)** | • comprehensive, feature-rich system at a reasonable cost<br>• 30 years in LIS industry with more than 1,500 LIS customers and more than 60 host system vendor partners<br>• intuitive, easy-to-use screens simplify training and facilitate daily operation | • proven high-volume processing for multi-site and single-lab operations<br>• all laboratory modules available on one integrated relational database<br>• flexible and scalable |

*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
***other=sales, marketing, administration, and other company functions
Note: a dash in lieu of an answer means company did not answer question or question is not applicable

†formerly Triple G Ultra
††don't track No. of sites installed

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# Laboratory information systems

| Part 8 of 17 | Healthvision<br>Allison Kelso info@healthvision.com<br>5030 Riverside Drive<br>Irving, TX 75039<br>469-420-2500 www.healthvision.com | Hex Laboratory Systems<br>Susan Bollinger sbollinger@hexlab.com<br>1042B El Camino Real, Suite 308<br>Encinitas, CA 92024<br>800-729-2085 www.hexlab.com |
|---|---|---|
| Name of laboratory information system | TDSynergy† | Lab/Hex |
| First ever/most recent LIS installation (based on September survey deadline) | 1972/September 2009 | 1981/June 2009 |
| Last major product release for featured LIS | February 2009 | June 2009 |
| Total No. of contracts for sites operating LIS | 765+ | 139 |
| • Hospital/independent lab contracts in U.S. | 8/1 | 9/68 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | — | 42/1 |
| • Other contracted U.S. sites/contracts for foreign sites | 1/760 | 9 (veterinary, research)/10 (independent) |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 3 | 3 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 2 (2/0/0) | 1 (0/1/0) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 2 | 4 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 765+ (sites in Canada, France, Italy, Zambia, U.K., Germany, Phillipines, others) | 152 (10–Mideast) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 60%/40% | 50%/50% |
| Staff to develop/install & support/other*** in entire firm | 425 total | 4/7/3 |
| Staff to develop/install & support/other*** in LIS division | 79/25/7 | — |
| No. of billed tests generated annually by LIS | 140,000–5,200,000 (mean, 675,000) | 250,000–18,000,000+ (mean, 3,500,000) |
| Range in No. of interactive workstations in sites operating LIS | 1–700 (mean, 40) | 3–64 (mean, 24) |
| Central hardware or service type | Sun, Unix, Linux, Windows, IBM, HP | Dell PowerEdge |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | C++, Java | Thoroughbred |
| Operating system(s) | Sun, Windows XP, 2003, 2000, Unix, Linux | Linux |
| Databases and tools | SQL server, Oracle | — |
| System includes full transaction logging? | yes | yes |
| Languages (other than English) offered on system | French, Spanish, Dutch, Flemish, Chinese, Italian, German, Korean | none |
| 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 | 6% | 2% |
| • NCCLS POCT-1A standard interface for POCT devices | 5% | 2% |
| • Microbiology/public health microbiology | 85%/available but not installed | 100%/1% |
| • Blood bank donor and transfusion | 35% | not available |
| • Surgical pathology/cytology | 40%/35% | 50%/100% |
| • Molecular pathology/cytogenetics | 5%/5% | 1%/1% |
| • Flow cytometry | 5% | 1% |
| • HIS or EMR interface for A/D/T | 85% | 50% |
| • HIS or EMR interface for order entry/results reporting | 25%/45% | 75%/75% |
| • HIS or EMR interface for packaging results into PDF format | 5% | 50% |
| • HIS or EMR interface for packaging results into CDA1 format/CDA2 format | — | 50%/50% |
| • Ad hoc reporting/rules-based system | 100%/100% | 100%/100% |
| • Management and statistical reporting | 100% | 100% |
| • Outreach and commercial laboratory | 55% | 75% |
| • Compliance checking/billing and accounts receivable | 6%/55% | 100%/75% |
| • Materials management and inventory | 3% | 1% |
| • 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 | 40%/35% | 75%/75% |
| • Specimen management and tracking | 25% | 10% |
| • Compliance and quality assurance tools | 100% | 100% |
| • HLA (tissue typing) | available but not installed | available but not installed |
| • Environmental health/newborn screening | available but not installed/65% | available but not installed/available but not installed |
| • Stem cell laboratory | 5% | available but not installed |
| 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 | — | 50 |
| How data center is operated | — | by vendor |
| LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | not available | available but not in use |
| • Other reportable diseases | not available | available but not in use |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | 3 sites | available but not in use |
| Information systems interfaced | Meditech, Misys, Healthvision, SCC Soft Computer, McKesson, self developed, others | McKesson, Cerner, Sunquest, PSI, Siemens, Experior, Hearts, WebMD, Practice Partners, Allscripts, GE Healthcare, proprietary, others |
| Laboratory automation systems interfaced | Beckman Coulter, Sysmex, Siemens, Roche, Bayer | Roche |
| LIS provides validation or testing tools? | yes (self developed) | yes (Hex) |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | yes (SNOMED, Info-X, NCCLS)/yes | 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) | yes (80%) | no |
| No. of different lab instruments interfaced with LIS | 475 | 250+ |
| Source code?/User group that meets regularly? | escrow/yes (meets in person annually) | escrow/no |
| User can modify screens? | yes (offer user-defined report writer, custom programming) | no (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | SQL, Access, Excel, Crystal Reports | SQL |
| Smallest cost for LIS hardware/software/monthly maintenance | $6k/$30k/$6k | $5k/$10k/$0.25k |
| Largest cost for LIS hardware/software/monthly maintenance | $300k/$2m/$33k | $50k/$180k/$2.5k |
| Distinguishing features (supplied by vendor) | • proactive turnaround time and management-alerting system<br>• multilingual<br>• easy to use and sophisticated rules-based logic | • flexible; user definable; easy to use<br>• billing fully integrated or standalone with electronic HIPAA-compliant billing, remittance, financial and management reports; plans for 5010 and ICD-10 in place<br>• stable, reliable system with personalized 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
***other=sales, marketing, administration, and other company functions
*Note: a dash in lieu of an answer means company did not answer question or question is not applicable*

†formerly marketed under MediSolution

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# Laboratory information systems

| Part 9 of 17 | Impac Medical Systems<br>sales@impac.com<br>100 Mathilda Place, 5th Floor<br>Sunnyvale, CA 94086<br>408-830-8000  www.elekta.com | LabSoft<br>Sales Department  sales@labsoftweb.com<br>9104 Shenandoah Run<br>Wesley Chapel, FL 33544<br>800-767-3279  www.labsoftweb.com |
|---|---|---|
| Name of laboratory information system | IntelliLab | LabNet |
| First ever/most recent LIS installation (based on September survey deadline) | 2003/September 2008 | 1992/2009 |
| Last major product release for featured LIS | September 2008 | 2008 |
| Total No. of contracts for sites operating LIS | 65 | 300+ |
| • Hospital/independent lab contracts in U.S. | 1/2 | 61/47 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 60/1 | 180/3 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/1 (educational) | 3 (research)/0 |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 2 | 6 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 1 (0/0/1–clinic/group practice) | 1 (0/1/0) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 1 | 1 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 177 (5–Canada) | 317 (1–Trinidad) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 30%/70% | 30%/70% |
| Staff to develop/install & support/other*** in entire firm | 150/150/200 | 3/2/2 |
| Staff to develop/install & support/other*** in LIS division | 5/6/6 | 3/2/2 |
| No. of billed tests generated annually by LIS | 20,000–500,000 | 1,000–1,000,000 (mean, 10,000) |
| Range in No. of interactive workstations in sites operating LIS | 3–50 (mean, 15) | 1–77 (mean, 3) |
| Central hardware or service type | Dell, HP | Dell |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | Visual Basic, C++ | Delphi |
| Operating system(s) | Windows 2000, 2003, XP, Vista | Windows |
| Databases and tools | mvBase | Microsoft 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% | 100% |
| • Bar-coded collection labels | 100% | 100% |
| • Handheld devices for bedside-positive patient ID | not available | not available |
| • NCCLS POCT-1A standard interface for POCT devices | — | 30% |
| • Microbiology/public health microbiology | 20%/not available | 20%/2% |
| • Blood bank donor and transfusion | not available | not available |
| • Surgical pathology/cytology | not available/not available | 2%/not available |
| • Molecular pathology/cytogenetics | not available/not available | not available/not available |
| • Flow cytometry | not available | not available |
| • HIS or EMR interface for A/D/T | installed | 90% |
| • HIS or EMR interface for order entry/results reporting | 85%/85% | 70%/70% |
| • 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 | 100%/100% | 30%/50% |
| • Management and statistical reporting | 100% | 100% |
| • Outreach and commercial laboratory | installed | 25% |
| • Compliance checking/billing and accounts receivable | 100%/10% | 70%/100% |
| • Materials management and inventory | not available | not available |
| • Test partition/remote faxing and printing | 100%/100% | 100%/50% |
| • HIPAA-standard transaction formats | 100% | not available |
| • Web-based remote inquiry of reports/Web access for order entry | installed/installed | 30%/30% |
| • Specimen management and tracking | not available | 60% |
| • Compliance and quality assurance tools | not available | not available |
| • HLA (tissue typing) | not available | not available |
| • Environmental health/newborn screening | not available/not available | not available/not available |
| • Stem cell laboratory | 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 | — | browser based |
| ASP information conduit | — | operates over the Internet |
| Client contracts supported from data center not operated by client | — | 13 |
| How data center is operated | — | by a third party |
| LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | available but not in use | — |
| • Other reportable diseases | available but not in use | — |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | not available | — |
| Information systems interfaced | Siemens, Healthland, Impac, NextGen, GE Healthcare, Allscripts, QSI, MedicaLogic, HealthWorks, Varian | GE Healthcare, Epic, Misys, Cerner, Meditech, Siemens, SCC Soft Computer, others |
| Laboratory automation systems interfaced | no | Beckman Coulter, Olympus America |
| LIS provides validation or testing tools? | no | no |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | no/yes | yes (CodeMap)/no |
| Software provides indexed field in each test definition for LOINC code? | yes | no |
| Provide LOINC dictionary for each new installation? | no | no |
| LIS supports use of SNOMED CT? | no | — |
| Market modules for other hospital departments? (percent of installs lab only) | yes (50%) | no |
| No. of different lab instruments interfaced with LIS | 400 (Dawning Technologies and Data Innovations for interface) | 200+ |
| Source code?/User group that meets regularly? | escrow/yes (meets in person annually) | escrow/no |
| User can modify screens? | no (offer user-defined report writer) | no (offer custom programming) |
| Query languages to retrieve information from LIS database | AQL, SQL with ODBC | SQL |
| Smallest cost for LIS hardware/software/monthly maintenance | $10k/$25k/— | $3.5k/$6k/$1k |
| Largest cost for LIS hardware/software/monthly maintenance | $30k/$200k/— | $30k/$150k/$18k |
| Distinguishing features (supplied by vendor) | • fully integrated with Impac's medical oncology information system<br>• reflex rules engine<br>• quality control module | • intuitive: easy to learn and use<br>• flexible and user definable<br>• high value and reliable |

*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
***other=sales, marketing, administration, and other company functions
*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 10 of 17 | McKesson<br>Joseph R. Stabile   joseph.stabile@mckesson.com<br>5995 Windward Parkway<br>Alpharetta, GA 30005<br>404-338-6000   www.mckesson.com/laboratory | Medical Information Technology<br>Paul Berthiaume   pberthiaume@meditech.com<br>Meditech Circle<br>Westwood, MA 02090<br>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 September survey deadline) | 1972/August 2009 | 1970/April 2009 |
| Last major product release for featured LIS | March 2009 | April 2008 |
| Total No. of contracts for sites operating LIS | 115 | not tracked |
| • Hospital/independent lab contracts in U.S. | 110/2 | — |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 0/0 | — |
| • Other contracted U.S. sites/contracts for foreign sites | 0/3 (hospitals) | — |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 15 | 1 (site) |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 10 (10/0/0) | 2 (sites) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 5 | — |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 197 (3–Canada, Saudi Arabia) | 2 (0) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 85%/15% | — |
| Staff to develop/install & support/other*** in entire firm | 32,000 total–McKesson; 9,000 total–McKesson Provider Technologies | 643/1,577/499 |
| Staff to develop/install & support/other*** in LIS division | 80 total | 22/80/5 |
| No. of billed tests generated annually by LIS | not tracked | not tracked |
| Range in No. of interactive workstations in sites operating LIS | 10–400 (mean, 35) | not tracked |
| Central hardware or service type | HP, IBM, Dell | JJWild, Dell, IBM, EMC, HP, others |
| How central server failure is handled | system continues uninterrupted | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | Delphi, C, Java, .Net | Meditech Magic |
| Operating system(s) | Windows, Red Hat Enterprise Linux | client: Windows 2000, XP, Vista; server: Windows 2000, 2003 |
| Databases and tools | Oracle, HP-UX, AIX, Linux | Meditech hierarchical database |
| System includes full transaction logging? | yes | yes |
| Languages (other than English) offered on system | none | Spanish in development |
| 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 product) | installed |
| • Surgical pathology/cytology | through Horizon AP product/through Horizon AP product | installed/installed |
| • Molecular pathology/cytogenetics | not available/not available | not available/not available |
| • Flow cytometry | through Horizon AP product | not available |
| • HIS or EMR interface for A/D/T | installed | installed |
| • HIS or EMR interface for order entry/results reporting | installed/installed | installed/installed |
| • HIS or EMR interface for packaging results into PDF format | through Horizon AP product | installed |
| • 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 |
| • HLA (tissue typing) | installed | not available |
| • Environmental health/newborn screening | installed/installed | installed/installed |
| • Stem cell laboratory | 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 browser based; LIS deployed on client or via Citrix | — |
| ASP information conduit | operates over Internet or 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 provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | 9 sites (HL7 2.3 in operation) | HL7 in operation (Meditech does not track No. of sites using HL7) |
| • Other reportable diseases | 9 sites (HL7 2.3 in operation) | HL7 in operation (Meditech does not track No. of sites using HL7) |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | not available | HL7 in operation (Meditech does not track No. of sites using HL7) |
| Information systems interfaced | McKesson, Siemens, GE Healthcare, Meditech, Cerner, Epic, Atlas, SCC Soft Computer, Sunquest, homegrown, others | Cerner, Siemens, McKesson, others |
| Laboratory automation systems interfaced | interfaces to lab automation systems available through Data Innovations | Beckman Coulter, Sysmex, Roche, Bayer |
| 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 (CMS, ICD-9, CPT, 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? | no | no |
| LIS supports use of SNOMED CT? | yes | yes |
| Market modules for other hospital departments? (percent of installs lab only) | yes (50%) | yes |
| No. of different lab instruments interfaced with LIS | 350+ (Data Innovations for interface) | 1,000+ |
| Source code?/User group that meets regularly? | escrow/yes (meets in person annually) | yes/yes (meets via Internet; in person) |
| User can modify screens? | no (offer user-defined report writer, custom programming) | yes (offer user-defined report writer) |
| 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 vendor) | • advanced bi-directional pharmacy integration with McKesson's pharmacy information solution<br>• Support Center Practices (SCP) certified for eight consecutive years<br>• substantially decreased total cost of ownership with availability of Linux platform | • integrated with clinical, administrative, and financial applications<br>• provides the flexibility to serve a range of organizations—from small community labs to multi-site university labs and large IDNs<br>• automates time-consuming tasks such as paperwork, phone calls, and results 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
***other=sales, marketing, administration, and other company functions
*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 11 of 17 | Medical Information Technology<br>Paul Berthiaume   pberthiaume@meditech.com<br>Meditech Circle<br>Westwood, MA 02090<br>781-821-3000   www.meditech.com | Medical Information Technology<br>Paul Berthiaume   pberthiaume@meditech.com<br>Meditech Circle<br>Westwood, MA 02090<br>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 September survey deadline) | 1970/August 2009 | 1970/June 2009 |
| Last major product release for featured LIS | April 2008 | July 2008 |
| Total No. of contracts for sites operating LIS | not tracked | not tracked |
| • Hospital/independent lab contracts in U.S. | — | — |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | — | — |
| • Other contracted U.S. sites/contracts for foreign sites | — | — |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 43 (sites) | 12 (sites) |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 39 (sites) | 9 (sites) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 24 (sites) | 18 (sites) |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 360 (30–Canada, Singapore, Bahamas, United Arab Emirates, United Kingdom) | 805 (68–Ireland, United Kingdom) |
| Percentage of high-volume* sites installed/low-volume** sites installed | — | — |
| Staff to develop/install & support/other*** in entire firm | 643/1,577/499 | 643/1,577/499 |
| Staff to develop/install & support/other*** in LIS division | 22/80/5 | 22/80/5 |
| No. of billed tests generated annually by LIS | not tracked | not tracked |
| Range in No. of interactive workstations in sites operating LIS | not tracked | not tracked |
| Central hardware or service type | JJWild, Dell, IBM, EMC, HP, others | JJWild, Dell, IBM, EMC, HP, others |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | Meditech Magic | Meditech Magic |
| Operating system(s) | client: Windows 2000, XP, Vista; server: Windows 2000, 2003 | Windows 2000 Professional, XP, Vista |
| Databases and tools | Meditech hierarchical database | Meditech hierarchical database |
| System includes full transaction logging? | yes | no |
| Languages (other than English) offered on system | Spanish in development | 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 A/D/T | installed | installed |
| • HIS or EMR interface for order entry/results reporting | installed/installed | installed/installed |
| • HIS or EMR interface for packaging results into PDF format | installed | installed |
| • 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 |
| • HLA (tissue typing) | not available | not available |
| • Environmental health/newborn screening | installed/installed | installed/installed |
| • Stem cell laboratory | 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 provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | HL7 in operation (Meditech does not track No. of sites using HL7) | HL7 in operation as an A/D/T interface (No. of sites unknown) |
| • Other reportable diseases | HL7 in operation (Meditech does not track No. of sites using HL7) | HL7 in operation as an A/D/T interface (No. of sites unknown) |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | HL7 in operation (Meditech does not track No. of sites using HL7) | HL7 in operation as an A/D/T interface (No. of sites unknown) |
| Information systems interfaced | Cerner, Siemens, McKesson, others | Cerner, Siemens, McKesson, others |
| Laboratory automation systems interfaced | Beckman Coulter, Sysmex, Roche, Bayer | Beckman Coulter, Sysmex, Roche, Bayer |
| 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 | yes |
| No. of different lab instruments interfaced with LIS | 1,000+ | 1,000+ |
| Source code?/User group that meets regularly? | yes/yes (meets via Internet; in person) | yes/yes (meets via Internet; in person) |
| User can modify screens? | yes (offer user-defined report writer) | yes (offer user-defined report writer) |
| 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 vendor) | • integrated with clinical, administrative, and financial applications<br>• provides flexibility to serve a range of organizations—from small community labs to multi-site university labs and large IDNs<br>• automates time-consuming tasks such as paperwork, phone calls, and results verification | • integrated with clinical, administrative, and financial applications<br>• provides flexibility to serve a range of organizations—from small community labs to multi-site university labs and large IDNs<br>• automates time-consuming tasks such as paperwork, phone calls, and results 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
***other=sales, marketing, administration, and other company functions
Note: a dash in lieu of an answer means company did not answer question or question is not applicable

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

# Laboratory information systems

| Part 12 of 17 | Multidata Computer Systems<br>Michael Slater  mrslater@mul.com<br>160 Broadway, Suite 1010<br>New York, NY 10038<br>212-967-6700  www.mul.com | NetLims<br>Avi Allerhand  avi@netlims.com<br>111 Town Square Place, Suite 700<br>Jersey City, NJ 07310<br>201-894-5300  www.netlims.com |
|---|---|---|
| Name of laboratory information system | MultiTech LIS | AutoLims |
| First ever/most recent LIS installation (based on September survey deadline) | 1983/2005 | 1996/August 2009 |
| Last major product release for featured LIS | 2009 | July 2009 |
| Total No. of contracts for sites operating LIS | 41 | 14 |
| • Hospital/independent lab contracts in U.S. | 7/33 | 2/7 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 1/0 | 0/0 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/0 | 0/5 (hospitals, central laboratories) |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 0 | 1 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 0 | 0 |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 0 | 1 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 41 (0) | 43 (35–Israel, India) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 45%/55% | 90%/10% |
| Staff to develop/install & support/other*** in entire firm | 4/5/2 | 58/38/15 |
| Staff to develop/install & support/other*** in LIS division | — | — |
| No. of billed tests generated annually by LIS | 50,000–5,500,000 | 400,000–10,000,000 (mean, 1,500,000) |
| Range in No. of interactive workstations in sites operating LIS | 4–120+ (mean, 30) | 19–550 (mean, 60) |
| Central hardware or service type | Intel x86 compatible, most Unix RISC, HP Alpha | IBM, Dell, HP, others |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | system continues uninterrupted |
| Programming language(s) | Caché (M), Visual Basic, HTML, Java, Javascript | C++, Visual Basic, Java, .Net, Flex |
| Operating system(s) | Windows, Linux | Windows 2000, 2003, XP, Linux, Unix |
| Databases and tools | Caché (M) | Oracle, Microsoft SQL 2000, 2005, Caché |
| System includes full transaction logging? | optional | yes |
| Languages (other than English) offered on system | none | Hebrew |
| Features/modules (listed as percent of live installs or based on availability) | | |
| • Chemistry and hematology | 90% | 95% |
| • Bar-coded collection labels | 90% | 100% |
| • Handheld devices for bedside-positive patient ID | — | available but not installed |
| • NCCLS POCT-1A standard interface for POCT devices | — | not available |
| • Microbiology/public health microbiology | 80%/— | 85%/25% |
| • Blood bank donor and transfusion | — | 40% |
| • Surgical pathology/cytology | 15%/40% | 30%/55% |
| • Molecular pathology/cytogenetics | 20%/— | 15%/10% |
| • Flow cytometry | 25% | 10% |
| • HIS or EMR interface for A/D/T | 30% | 75% |
| • HIS or EMR interface for order entry/results reporting | 30%/30% | 55%/40% |
| • HIS or EMR interface for packaging results into PDF format | 15% | available but not installed |
| • HIS or EMR interface for packaging results into CDA1 format/CDA2 format | — | not available/not available |
| • Ad hoc reporting/rules-based system | 40%/90% | 100%/100% |
| • Management and statistical reporting | 100% | 100% |
| • Outreach and commercial laboratory | 90% | 100% |
| • Compliance checking/billing and accounts receivable | 80%/90% | 50%/40% |
| • Materials management and inventory | 20% | available but not installed |
| • Test partition/remote faxing and printing | 100%/80% | 100%/100% |
| • HIPAA-standard transaction formats | 90% | 100% |
| • Web-based remote inquiry of reports/Web access for order entry | 35%/25% | 60%/50% |
| • Specimen management and tracking | 10% | 60% |
| • Compliance and quality assurance tools | 50% | 70% |
| • HLA (tissue typing) | — | not available |
| • Environmental health/newborn screening | — | 10%/40% |
| • Stem cell laboratory | — | 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 | 5 | — |
| How data center is operated | by vendor | — |
| LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | 1 site | 15% of sites |
| • Other reportable diseases | 20 sites | 20% of sites |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | — | 25% of sites |
| Information systems interfaced | Epic, GE, NextGen, eClinicalWorks, Cerner, Siemens, Netsmart, Reliable Health, Smart Management, Compliance Information Systems | Eclipsys, GE Healthcare, Siemens, Misys, Cerner |
| Laboratory automation systems interfaced | Sysmex, Siemens, Bayer | Beckman Coulter, Sysmex, Siemens, Ortho, Olympus, Roche, Abbott, Bayer |
| LIS provides validation or testing tools? | no | yes (complete test environment) |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | yes (PMIC, CMS)/optional | yes (Info-X, AMA, Quest, Specialty, SNOMED, 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 | yes |
| Market modules for other hospital departments? (percent of installs lab only) | no | no |
| No. of different lab instruments interfaced with LIS | 125+ | 150+ |
| Source code?/User group that meets regularly? | escrow/no | escrow/yes (meets in person biannually) |
| User can modify screens? | no (offer user-defined report writer, custom programming) | yes (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | any ODBC compliant, including Crystal Reports, SQL, Access | SQL |
| Smallest cost for LIS hardware/software/monthly maintenance | $20k/$50k/$0.75k | $30k/$80k/$1k |
| Largest cost for LIS hardware/software/monthly maintenance | $250k/$400k/$5k | $700k/$2.8m/$55k |
| Distinguishing features (supplied by vendor) | • extensive capabilities for integrating commercial labs with large-scale and networked primary care organizations<br>• complete billing, A/R, and management reporting for commercial labs and hospital outreach, including electronic eligibility, authorization, and more<br>• integrated document-management system for imaging/retrieval of requisitions and related documents | • technology variety and flexibility—Windows system with Web, HTML, choice of database, others<br>• customizable—tailored for any environment and work procedure<br>• integrated—all lab disciplines and billing in one database |

*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
***other=sales, marketing, administration, and other company functions
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 17 | Omnitech<br>Sylvain Fontaine   s.fontaine@omnitechlabs.net<br>38800 Ash Rd.<br>Waltz, MI 48164<br>877-336-6664, ext. 265   www.omnitechlabs.net | Orchard Software<br>Kerry Foster   sales@orchardsoft.com<br>701 Congressional Blvd., Suite 360<br>Carmel, IN 46032<br>800-856-1948   www.orchardsoft.com |
|---|---|---|
| Name of laboratory information system | OmniLab† | Orchard Harvest LIS |
| First ever/most recent LIS installation (based on September survey deadline) | 1994/2009 | 1993/September 2009 |
| Last major product release for featured LIS | 2007 | September 2009 |
| Total No. of contracts for sites operating LIS | 98 | 946 |
| • Hospital/independent lab contracts in U.S. | 4/1 | 209/111 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 0/0 | 549/18 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/93 | 59 (universities, student health centers, research, veterinarian labs)/0 |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 6 | 84 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 7 (4/3/0) | 20 (4/3/13–clinics, POLs, student health labs) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 6 | 104 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 150 (145–Canada, Belgium) | 1,117 |
| Percentage of high-volume* sites installed/low-volume** sites installed | 35%/65% | 40%/60% |
| Staff to develop/install & support/other*** in entire firm | 30/16/10 | 27/73/40 |
| Staff to develop/install & support/other*** in LIS division | 28/14/10 | — |
| No. of billed tests generated annually by LIS | 20,000–10,000,000 (mean, 150,000) | 5,000–4,000,000 (mean, 500,000) |
| Range in No. of interactive workstations in sites operating LIS | 4–300 (mean, 50) | 1–500 (mean, 30) |
| Central hardware or service type | Dell, IBM, HP | HP Business Class |
| How central server failure is handled | system continues uninterrupted | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | Visual Basic 6, Visual Basic .Net | 4D, C++, Java, HTML |
| Operating system(s) | Windows 2003, 2008 | Windows 2000, XP Professional, Vista, Windows Server 2003 standard edition |
| Databases and tools | SQL 2008 | 4D, SQL |
| System includes full transaction logging? | yes | yes |
| Languages (other than English) offered on system | French, Spanish, Portuguese | — |
| Features/modules (listed as percent of live installs or based on availability) | | |
| • Chemistry and hematology | 94% | 100% |
| • Bar-coded collection labels | 100% | 100% |
| • Handheld devices for bedside-positive patient ID | available but not installed | available but not installed |
| • NCCLS POCT-1A standard interface for POCT devices | available but not installed | 1% |
| • Microbiology/public health microbiology | 75%/available but not installed | 15%/1% |
| • Blood bank donor and transfusion | available but not installed | not available |
| • Surgical pathology/cytology | 20%/14% | 4%/5% |
| • Molecular pathology/cytogenetics | available but not installed/available but not installed | 1%/1% |
| • Flow cytometry | not available | 2% |
| • HIS or EMR interface for A/D/T | not available | 90% |
| • HIS or EMR interface for order entry/results reporting | not available/75% | 60%/65% |
| • HIS or EMR interface for packaging results into PDF format | 50% | 15% |
| • 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 | 13% | 20% |
| • Compliance checking/billing and accounts receivable | 20%/8% | 100%/not available |
| • Materials management and inventory | not available | 20% |
| • Test partition/remote faxing and printing | 100%/80% | 25%/100% |
| • HIPAA-standard transaction formats | installed | 100% |
| • Web-based remote inquiry of reports/Web access for order entry | 20%/20% | 65%/60% |
| • Specimen management and tracking | 100% | 100% |
| • Compliance and quality assurance tools | 10% | 100% |
| • HLA (tissue typing) | 10% | not available |
| • Environmental health/newborn screening | not available/not available | 1%/2% |
| • Stem cell laboratory | not available | 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 | transaction based | fixed fee |
| Client software required | browser based | browser based |
| ASP information conduit | operates over the Internet | operates over Internet or requires use of a VPN or other dedicated connection |
| Client contracts supported from data center not operated by client | 40 | 1 |
| How data center is operated | by a third party | by vendor |
| LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | available but not in use | 5 sites |
| • Other reportable diseases | available but not in use | 5 sites |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | available but not in use | available but not in use |
| Information systems interfaced | McKesson, Healthvision, Momentum Healthware, Per-Sé, Sphere Health, Mardon Healthcare, Siemens | Allscripts, NextGen, CPSI, Healthland, HealthQuest, Misys, GE Healthcare, NetSolutions, Meditech, QuadraMed, Impac, Medisoft, others |
| Laboratory automation systems interfaced | Beckman Coulter, Roche | Beckman Coulter, Ortho, Roche |
| LIS provides validation or testing tools? | yes | yes (proprietary) |
| 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 | yes |
| Market modules for other hospital departments? (percent of installs lab only) | yes (97%) | no |
| No. of different lab instruments interfaced with LIS | 300+ (Data Innovations for interface) | 400+ |
| Source code?/User group that meets regularly? | escrow/yes (meets in person annually) | escrow/yes (meets via Internet unlimited; in person 14 times per year) |
| User can modify screens? | yes (offer user-defined report writer, custom programming) | yes (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | SQL, ODBC | ODBC-compliant query languages |
| Smallest cost for LIS hardware/software/monthly maintenance | $10k/$75k/$1.125k | $12k/$20k/$0.25k |
| Largest cost for LIS hardware/software/monthly maintenance | $200k/$1m/$15k | $100k/$800k/$6k |
| Distinguishing features (supplied by vendor) | • hybrid design to support hospital, commercial, and esoteric labs<br>• functional leader in the industry<br>• industry standard-setter for implementation and support | • rules-based advanced decision support logic<br>• interfacing and integration with other host systems, departments, and reference labs<br>• industry leader in product development, 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
***other=sales, marketing, administration, and other company functions
Note: a dash in lieu of an answer means company did not answer question or question is not applicable        †formerly Cortex TNG

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# Laboratory information systems

| Part 14 of 17 | Psyche Systems Corp.<br>Lisa-Jean Clifford   lj@psychesystems.com<br>321 Fortune Blvd.<br>Milford, MA 01757<br>508-473-1500   www.psychesystems.com | Quality Software Systems<br>Jeff Caspari   jcaspari@labhealth.com<br>252 Old Nyack Turnpike<br>Spring Valley, NJ 10977<br>845-352-4313   www.labhealth.com |
|---|---|---|
| Name of laboratory information system | LabWeb | LabHealth |
| First ever/most recent LIS installation (based on September survey deadline) | 1976/2009 | 1984/2009 |
| Last major product release for featured LIS | 2006 | 2009 |
| Total No. of contracts for sites operating LIS | 20 | 43 |
| • Hospital/independent lab contracts in U.S. | 15/3 | 3/23 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 0/2 | 17/0 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/0 | 0/0 |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 2 | 3 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 2 (1/1/0) | — |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 2 | — |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 18 (0) | 13 |
| Percentage of high-volume* sites installed/low-volume** sites installed | 22%/78% | — |
| Staff to develop/install & support/other*** in entire firm | 16/20/9 | 4/4/1 |
| Staff to develop/install & support/other*** in LIS division | 5/5/2 | — |
| No. of billed tests generated annually by LIS | — | — |
| Range in No. of interactive workstations in sites operating LIS | 1–120 (mean, 20) | 5–150 |
| Central hardware or service type | HP, Pentium compatible | Dell |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | system continues uninterrupted |
| Programming language(s) | Visual Basic, .Net, C, Fortran | Basic, ASP .Net |
| Operating system(s) | Windows Vista, XP, NT, 2000, Open VMS | Windows, Linux |
| Databases and tools | Microsoft SQL, Oracle, Crystal Reports | multi-value DBMS |
| System includes full transaction logging? | yes | yes |
| Languages (other than English) offered on system | — | — |
| **Features/modules (listed as percent of live installs or based on availability)** | | |
| • Chemistry and hematology | 100% | 95% |
| • Bar-coded collection labels | 100% | 95% |
| • Handheld devices for bedside-positive patient ID | available but not installed | 50% |
| • NCCLS POCT-1A standard interface for POCT devices | available but not installed | 25% |
| • Microbiology/public health microbiology | 33%/not available | 80%/75% |
| • Blood bank donor and transfusion | 40% | — |
| • Surgical pathology/cytology | 33%/33% | 35%/40% |
| • Molecular pathology/cytogenetics | 10%/10% | — |
| • Flow cytometry | 10% | — |
| • HIS or EMR interface for A/D/T | 90% | 60% |
| • HIS or EMR interface for order entry/results reporting | 75%/75% | 100%/100% |
| • HIS or EMR interface for packaging results into PDF format | 30% | 80% |
| • HIS or EMR interface for packaging results into CDA1 format/CDA2 format | 25%/not available | 90%/— |
| • Ad hoc reporting/rules-based system | 100%/25% | 100%/80% |
| • Management and statistical reporting | 100% | 90% |
| • Outreach and commercial laboratory | 100% | 90% |
| • Compliance checking/billing and accounts receivable | 20%/not available | 90%/100% |
| • Materials management and inventory | available but not installed | 80% |
| • 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 | 35%/40% | 80%/90% |
| • Specimen management and tracking | installed | 80% |
| • Compliance and quality assurance tools | not available | 75% |
| • HLA (tissue typing) | not available | — |
| • Environmental health/newborn screening | not available/not available | — |
| • Stem cell laboratory | not available | — |
| 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 |
| Client software required | browser based or requires that software be installed on a client PC | browser based |
| ASP information conduit | operates over Internet or requires use of a VPN or other dedicated connection | operates over the Internet |
| Client contracts supported from data center not operated by client | 1 | 35 |
| How data center is operated | by vendor | by vendor |
| **LIS provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for:** | | |
| • Microbiology data | available but not in use | — |
| • Other reportable diseases | available but not in use | — |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | 2 sites | — |
| Information systems interfaced | Meditech, McKesson, CPSI, Siemens, QuadraMed, Cerner, Misys, Keane, SysCore, Seacoast Laboratory Data Systems, others | — |
| Laboratory automation systems interfaced | Beckman Coulter, Sysmex, Ortho, Olympus America, Roche | Beckman Coulter, Sysmex, Siemens, Ortho, Olympus, Roche, Abbott |
| LIS provides validation or testing tools? | yes (proprietary and blood bank guidelines) | — |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | yes (CodeMap)/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 | yes |
| Market modules for other hospital departments? (percent of installs lab only) | yes (43%) | no |
| No. of different lab instruments interfaced with LIS | 350+ (Dawning Technologies for interface) | — |
| Source code?/User group that meets regularly? | escrow/yes (meets via Internet quarterly; in person biannually) | yes/no |
| User can modify screens? | yes (offer user-defined report writer, custom programming) | yes (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | Microsoft SQL, ODBC compliant | — |
| Smallest cost for LIS hardware/software/monthly maintenance | $4k/$20k/— | $5k/$10k/$0.5k |
| Largest cost for LIS hardware/software/monthly maintenance | $100k/$400k/$6k | $25k/$150k/$4k |
| Distinguishing features (supplied by vendor) | • ability to extend the life, functionality, and IT investment of LIS through such add-on modules as outreach, EMR, interfacing, and customized reporting<br>• leader in laboratory solutions for cost-conscious laboratories<br>• full anatomic pathology and clinical lab systems that are fully integrated with other systems, including other LISs, HISs, billing, and more | • customizations<br>• flexibility<br>• customer 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
***other=sales, marketing, administration, and other company functions
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 17 | SCC Soft Computer<br>Ellie Vahman   ellie@softcomputer.com<br>5400 Tech Data Drive<br>Clearwater, FL 33760<br>727-789-0100   www.softcomputer.com | Schuyler House<br>Janet Chennault   jlc@schuylerhouse.com<br>26027 Huntington Lane, Unit F<br>Valencia, CA 91355<br>800-706-0266   www.schuylab.com |
|---|---|---|
| **Name of laboratory information system** | **SoftLab** | **SchuyLab** |
| First ever/most recent LIS installation (based on September survey deadline) | 1985/June 2009 | 1994/August 2009 |
| Last major product release for featured LIS | April 2009 | July 2009 |
| Total No. of contracts for sites operating LIS | 337 | 734 |
| • Hospital/independent lab contracts in U.S. | 269/26 | 115/241 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 9/3 | 321/0 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/30 (hospitals) | 37 (veterinary, vendor, school)/20 (hospitals, POLs) |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 8 | 27 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 12 (10/2/0) | 1 (0/0/1–clinic/group practice) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 12 | 27 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 676 (51–Canada, Brazil) | 729 (20–Carribean, Guam) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 60%/40% | 5%/95% |
| Staff to develop/install & support/other*** in entire firm | 785/456/281 | 4/11/8 |
| Staff to develop/install & support/other*** in LIS division | 779/450/281 | 4/11/8 |
| No. of billed tests generated annually by LIS | 150,000–20,000,000+ | 5,000–7,000,000 (mean, 5,000) |
| Range in No. of interactive workstations in sites operating LIS | 10–4,000 (mean, 75) | 1–64 (mean, 3) |
| Central hardware or service type | IBM pSeries | any PC (Dell recommended) |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | manual intervention necessary to restore operation |
| Programming language(s) | C, C++, Java, .Net | C Language |
| Operating system(s) | server: IBM AIX; workstation: Microsoft Windows | Windows XP, Vista |
| Databases and tools | Oracle, RDM++ | Pervasive, Btrieve |
| System includes full transaction logging? | yes | no |
| Languages (other than English) offered on system | French, ABN forms available in Spanish | 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 | 100% | 40% |
| • Handheld devices for bedside-positive patient ID | 13% | — |
| • NCCLS POCT-1A standard interface for POCT devices | 15%–20% | — |
| • Microbiology/public health microbiology | 84%/5% | 70%/— |
| • Blood bank donor and transfusion | 3% donor; 54% transfusion | — |
| • Surgical pathology/cytology | 47%/47% | 10%/10% |
| • Molecular pathology/cytogenetics | 3%/2% | — |
| • Flow cytometry | 15% | 1% |
| • HIS or EMR interface for A/D/T | 99% | 20% |
| • HIS or EMR interface for order entry/results reporting | 85%/88% | 20%/20% |
| • HIS or EMR interface for packaging results into PDF format | installed | — |
| • HIS or EMR interface for packaging results into CDA1 format/CDA2 format | available but not installed/available but not installed | — |
| • Ad hoc reporting/rules-based system | 100%/100% | 100%/installed |
| • Management and statistical reporting | 100% | 100% |
| • Outreach and commercial laboratory | 100% | 30% |
| • Compliance checking/billing and accounts receivable | 30%/22% | 40%/30% |
| • Materials management and inventory | — | not available |
| • Test partition/remote faxing and printing | 100%/100% | not available/40% |
| • HIPAA-standard transaction formats | available | 100% |
| • Web-based remote inquiry of reports/Web access for order entry | 13%/13% | 5%/5% |
| • Specimen management and tracking | 100% | not available |
| • Compliance and quality assurance tools | 25% | not available |
| • HLA (tissue typing) | 2% | not available |
| • Environmental health/newborn screening | not available/81% | not available/not available |
| • Stem cell laboratory | in development | 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 | — |
| Client software required | Web portal | — |
| ASP information conduit | operates over 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 provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for:** | | |
| • Microbiology data | 4 states live | 1 site |
| • Other reportable diseases | 4 states live | 1 site |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | 8 sites | not available |
| Information systems interfaced | 4Medica, McKesson, Meditech, Alliance-Plus, Allscripts, Healthland, CPSI, Keane, Cerner, NextGen, Atlas, Eclipsys, Emdeon, GE Healthcare, others | QuadraMed, Logician, Siemens, McKesson, A4, Atlas, MedGenix, GE Healthcare, eClinicalWorks, Varian, others |
| Laboratory automation systems interfaced | Beckman Coulter, Sysmex, Siemens, Ortho, Olympus, Roche, Abbott, others | Roche, Bayer |
| LIS provides validation or testing tools? | yes (Model Soft, Camtasia) | no |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | yes (Quadax, 3M/Info-X, ICD-9/10 codes, LOINC, Vitek, others)/yes | yes/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 | yes (100%) |
| No. of different lab instruments interfaced with LIS | 400+ | 250+ |
| Source code?/User group that meets regularly? | escrow/yes (meets via Internet; in person annually) | escrow/no |
| User can modify screens? | yes (offer user-defined report writer, custom programming) | yes (offer user-defined report writer) |
| Query languages to retrieve information from LIS database | ODBC, SQL, XML | — |
| Smallest cost for LIS hardware/software/monthly maintenance | $30k/$75k/$1.5k | $1k/$1.5k/$0.08k |
| Largest cost for LIS hardware/software/monthly maintenance | $1m/$8m/$150k | $40k/$30k/$3.5k |
| Distinguishing features (supplied by vendor) | • innovative, comprehensive, integrated suite of genetics modules for molecular, cytogenetics, HLA/immunogenetics, biochemistry, and flow cytometry<br>• powerful set of integrated laboratory-specific outreach tools<br>• core lab multi-site and specimen-tracking module to track across multiple testing locations and perform workstation redirection when necessary | • comprehensive system at a reasonable price<br>• ease of use–training in minutes<br>• integrates lab results with other systems; secure Internet access |

*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
***other=sales, marketing, administration, and other company functions
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 17 | Seacoast Laboratory Data Systems<br>**Jim Whitehurst**  jim@sldsi.com<br>**195 New Hampshire Ave., Suite 140**<br>**Portsmouth, NH 03801**<br>603-431-4114  www.sldsi.com | Siemens Medical<br>**Theresa McGillvray-Dodd**  theresa.mcgillvray-dodd@siemens.com<br>**18724 66th Ave., NE**<br>**Kenmore, WA 98028**<br>425-487-0179  www.usa.siemens.com/medical |
|---|---|---|
| Name of laboratory information system | **SurroundLab Plus** | **Novius Lab** |
| First ever/most recent LIS installation (based on September survey deadline) | —/September 2009 | 1983/2009 |
| Last major product release for featured LIS | **June 2009** | 2009 |
| Total No. of contracts for sites operating LIS | 24 | 42 |
| • Hospital/independent lab contracts in U.S. | 0/24 | 39/1 |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 0/0 | 0/1 |
| • Other contracted U.S. sites/contracts for foreign sites | 0/0 | 0/1 |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 4 | 4 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 4 (0/4/0) | 14 (14/0/0) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | — | 4 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 24 | 56 (1–Canada) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 95%/5% | 45%/55% |
| Staff to develop/install & support/other*** in entire firm | 15/15/15 | — |
| Staff to develop/install & support/other*** in LIS division | 7/11/3 | — |
| No. of billed tests generated annually by LIS | 300,000–4,000,000 (mean, 1,500,000) | 80,000–3,000,000 (mean, 650,000) |
| Range in No. of interactive workstations in sites operating LIS | 3–100+ (mean, 30) | 6–75 (mean, 20) |
| Central hardware or service type | HP, Dell | IBM pSeries, IBM xSeries |
| How central server failure is handled | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) | manual intervention necessary to restore operation |
| Programming language(s) | Caché, M-21 | C++ |
| Operating system(s) | Windows, Linux | Linux, AIX, Unix |
| Databases and tools | Caché, SST | Sybase |
| System includes full transaction logging? | — | 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 | not available | 5% |
| • NCCLS POCT-1A standard interface for POCT devices | not available | 50% |
| • Microbiology/public health microbiology | 75%/not available | 98%/5% |
| • Blood bank donor and transfusion | not available | installed |
| • Surgical pathology/cytology | not available/0 | installed/installed |
| • Molecular pathology/cytogenetics | 10%/not available | installed/installed |
| • Flow cytometry | not available | installed |
| • HIS or EMR interface for A/D/T | 100% | 95% |
| • HIS or EMR interface for order entry/results reporting | 100%/100% | 95%/95% |
| • HIS or EMR interface for packaging results into PDF format | 30% | not available |
| • 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 | 100% | installed |
| • Compliance checking/billing and accounts receivable | 100%/100% | installed/installed |
| • Materials management and inventory | not available | not available |
| • Test partition/remote faxing and printing | 100%/100% | 100%/98% |
| • HIPAA-standard transaction formats | 100% | installed |
| • Web-based remote inquiry of reports/Web access for order entry | 45%/15% | installed/not available |
| • Specimen management and tracking | 100% | installed |
| • Compliance and quality assurance tools | 70% | installed |
| • HLA (tissue typing) | not available | not available |
| • Environmental health/newborn screening | not available/not available | not available/not available |
| • Stem cell laboratory | 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 provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | 3 sites | available but not in use |
| • Other reportable diseases | 2 sites | available but not in use |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | — | not available |
| Information systems interfaced | Misys, Meditech, SCC Soft Computer, McKesson | McKesson |
| Laboratory automation systems interfaced | Beckman Coulter, Sysmex, Siemens, Olympus, Roche, Bayer | Beckman Coulter, Siemens, Tecan |
| LIS provides validation or testing tools? | yes (developed in-house) | yes (proprietary) |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | yes (CodeMap)/yes | no/no |
| Software provides indexed field in each test definition for LOINC code? | yes | no |
| 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 | yes (5%) |
| No. of different lab instruments interfaced with LIS | 200 | 300 (Siemens OpenLink and Data Innovations for interface) |
| Source code?/User group that meets regularly? | escrow/no | no/yes (meets in person annually) |
| User can modify screens? | no (offer custom programming) | yes (offer user-defined report writer) |
| Query languages to retrieve information from LIS database | SQL | SQL, ODBC |
| Smallest cost for LIS hardware/software/monthly maintenance | $1k/$50k/$1.1k | — |
| Largest cost for LIS hardware/software/monthly maintenance | $50k/$60k/$7.5k | — |
| Distinguishing features (supplied by vendor) | • commercial laboratory specific<br>• infinitely scalable<br>• completely multi-site capable | • workflow efficiency: turnaround time alerts, paperless operations with robust online searches, rules-based automation and knowledge, critical call management, document links<br>• excellent services with six-month implementation cycle times<br>• proven performance and reliability: ranked No. 1 in KLAS LIS ranking for 2008 |

*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
***other=sales, marketing, administration, and other company functions
*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 17 | Starlims Corp.<br>Ed Krasovec  ed.krasovec@starlims.com<br>4000 Hollywood Blvd.<br>Hollywood, FL 33021<br>954-964-8663  www.starlims.com | Sunquest Information Systems<br>Sylvia Rothrock  sylvia.rothrock@sunquestinfo.com<br>250 S. Williams Blvd.<br>Tucson, AZ 85711<br>877-239-6337  www.sunquestinfo.com |
|---|---|---|
| Name of laboratory information system | Starlims | Sunquest Laboratory |
| First ever/most recent LIS installation (based on September survey deadline) | 2001/July 2009 | 1979/2009 |
| Last major product release for featured LIS | 2009 | 2009 |
| Total No. of contracts for sites operating LIS | 44 | 400+ |
| • Hospital/independent lab contracts in U.S. | 1/5 | 350+/40+ |
| • Clinic or group practice contracts in U.S./public health lab contracts in U.S. | 0/20 | —/— |
| • Other contracted U.S. sites/contracts for foreign sites | 2 (plasma testing, biotechnology immunology lab)/16 (hospitals, reference labs, biobanks, public health) | —/20+ (hospitals) |
| • No. of these contracts that went live between Sept. 2008–Sept. 2009 | 16 | 14 |
| Contracts signed but LIS not yet operational (hospitals/independent labs/other sites) | 30 (10/5/15–research labs, public health labs, biobanks) | 21 (21/0/0) |
| • Total No. of contracts (live and not live) signed between Sept. 2008–Sept. 2009 | 15 | 16 |
| Total No. of sites operating LIS (No. of these sites outside the U.S.) | 68 (18–Russia, U.K., Jamaica, Germany, Belgium, Malaysia, Singapore, others) | 990+ (60+–Canada, U.K., Western Europe, Middle East) |
| Percentage of high-volume* sites installed/low-volume** sites installed | 56%/44% | 65%/35% |
| Staff to develop/install & support/other*** in entire firm | 38/96/34 | 253/235/126 |
| Staff to develop/install & support/other*** in LIS division | 9/36/11 | — |
| No. of billed tests generated annually by LIS | 10,000–20,000,000 | <500,000–17,000,000 (mean, 8,500,000) |
| Range in No. of interactive workstations in sites operating LIS | 5–1,000 | 4–500 |
| Central hardware or service type | — | HP, IBM |
| How central server failure is handled | system continues uninterrupted | manual intervention necessary to restore operation or system continues uninterrupted (lab's choice) |
| Programming language(s) | C++ | ANSI Standard M, Caché Script, Standard C/C++, Visual Basic, others |
| Operating system(s) | Windows | AIX, HP-UX, OpenVMS, Linux, Windows XP |
| Databases and tools | SQL server, Oracle | InterSystems Caché |
| System includes full transaction logging? | yes | yes |
| Languages (other than English) offered on system | French, Spanish, Chinese, Czech, Polish, Russian, Dutch, Korean, others | — |
| Features/modules (listed as percent of live installs or based on availability) | | |
| • Chemistry and hematology | 32% | 100% |
| • Bar-coded collection labels | 95% | 100% |
| • Handheld devices for bedside-positive patient ID | available but not installed | 20% |
| • NCCLS POCT-1A standard interface for POCT devices | installed | 20% |
| • Microbiology/public health microbiology | 10%/59% | 100%/1% |
| • Blood bank donor and transfusion | 3% | 80% |
| • Surgical pathology/cytology | 2%/7% | 60%/50% |
| • Molecular pathology/cytogenetics | 55%/available but not installed | 5%/3% |
| • Flow cytometry | 9% | 10% |
| • HIS or EMR interface for A/D/T | 8% | 99% |
| • HIS or EMR interface for order entry/results reporting | 16%/16% | 99%/99% |
| • HIS or EMR interface for packaging results into PDF format | installed | — |
| • HIS or EMR interface for packaging results into CDA1 format/CDA2 format | installed/available but not installed | — |
| • Ad hoc reporting/rules-based system | 95%/95% | 90%/100% |
| • Management and statistical reporting | 100% | 100% |
| • Outreach and commercial laboratory | installed | 75% |
| • Compliance checking/billing and accounts receivable | installed/50% | 30%/10% |
| • Materials management and inventory | 95% | — |
| • Test partition/remote faxing and printing | 100%/21% | 100%/90% |
| • HIPAA-standard transaction formats | installed | 100% |
| • Web-based remote inquiry of reports/Web access for order entry | 38%/38% | 15%/15% |
| • Specimen management and tracking | 95% | 100% |
| • Compliance and quality assurance tools | 75% | 100% |
| • HLA (tissue typing) | available but not installed | — |
| • Environmental health/newborn screening | 20%/7% | — |
| • Stem cell laboratory | 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 provides surveillance data to public health agencies via computer-to-computer interface using CDC, HL7, LOINC, SNOMED standards for: | | |
| • Microbiology data | 24 sites | 5% of sites |
| • Other reportable diseases | 31 sites | 5% of sites |
| • Tumor diagnosis or registry data (using NAACCR Pathology Laboratory Electronic Reporting, vol. V, version 2.2, February 2009 edition) | available but not in use | 10% of sites |
| Information systems interfaced | NetSuite, Heron Systems, Haemonetics, Mak-System, others | McKesson, Cerner, Siemens, GE Healthcare, Epic, Eclipsys, others |
| Laboratory automation systems interfaced | Beckman Coulter, Sysmex, Ortho, Olympus America, Roche, Abbott | Beckman Coulter, Sysmex, Siemens, Ortho, Olympus, Roche, Abbott, others |
| LIS provides validation or testing tools? | yes (IQ/OQ templates, functional requirements specifications, others) | yes (validation scripts) |
| LIS allows third-party updates of tables and rules/image capture, display, and reporting? | yes (any that use Web services, provide updates in structured file format)/yes | yes (3M, ICD-9)/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 | yes (95%) |
| No. of different lab instruments interfaced with LIS | 200+ (native tools or Data Innovations for interface) | 800+ |
| Source code?/User group that meets regularly? | escrow/yes (meets via e-mail forums; in person every 12–18 months, others) | escrow/yes (meets via Internet; in person) |
| User can modify screens? | yes (offer user-defined report writer, custom programming) | yes (offer user-defined report writer, custom programming) |
| Query languages to retrieve information from LIS database | SQL | SQL |
| Smallest cost for LIS hardware/software/monthly maintenance | $2k/$50k/$0.67k | — |
| Largest cost for LIS hardware/software/monthly maintenance | $100k/$1m/$13k | — |
| Distinguishing features (supplied by vendor) | • user-intuitive dashboard provides personalized "at-a-glance" view to key performance metrics and pending tasks<br>• integrated LIS capabilities with LIMS, clinical study management, biorepository, electronic laboratory notebook, and scientific data-management system functionality<br>• customer-configurable workflow tools | • eliminates misplaced specimens with cradle-to-grave specimen tracking starting wherever specimen acquisition occurs<br>• customers report clinical and anatomic workflow that is virtually error free, which decreases cost and increases lab's testing capacity<br>• allows client to deliver the Five Rights of Laboratory Testing |

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**generate <500,000 billed tests annually, or <200 bed hospitals, or <500 requisitions per day
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*Note: a dash in lieu of an answer means company did not answer question or question is not applicable*

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