## Laboratory Information Systems (LIS)

### Product Features

| Feature | Allscripts | Aspyra LLC | CyberLab
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>System includes full transaction logging</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Languages (other than English) offered on system</td>
<td>none</td>
<td>Chinese and Vietnamese (for results reporting only)</td>
<td></td>
</tr>
<tr>
<td>How central server failure is handled</td>
<td>manual intervention necessary to restore operation or system continues uninterrupted (user's option)</td>
<td>client hosted or cloud hosted manual intervention necessary to restore operation or system continues uninterrupted (user's option)</td>
<td></td>
</tr>
<tr>
<td>Central hardware or service type</td>
<td>Hewlett-Packard, IBM, Dell Windows, SQL server</td>
<td>Windows, SQL server</td>
<td></td>
</tr>
<tr>
<td>Range in No. of user workstations in sites operating LIS</td>
<td>10–1,000 (average, 60) 3–64 (average, 15) 2–148 (average, 75)</td>
<td>2–148 (average, 75)</td>
<td></td>
</tr>
<tr>
<td>Foreign countries where company actively markets LIS</td>
<td>—</td>
<td>Asia, Caribbean, Australia, New Zealand</td>
<td></td>
</tr>
</tbody>
</table>

### Product Comparison

<table>
<thead>
<tr>
<th>Allscripts</th>
<th>Prolis</th>
<th>CyberLab</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of employees in entire company</td>
<td>8,000</td>
<td>9</td>
</tr>
<tr>
<td>No. of employees dedicated to LIS development, installation, and support</td>
<td>35</td>
<td>9</td>
</tr>
<tr>
<td>Methods by which users can tailor LIS in their own setting</td>
<td>yes (Ad hoc query tools, user-defined interfaces, dictionary)</td>
<td>yes (Ad hoc query tools, user-defined interfaces, dictionary)</td>
</tr>
<tr>
<td>How test results retained online are made available</td>
<td>query, reports</td>
<td>query, reports</td>
</tr>
<tr>
<td>LIS can report lab data that is focus of meaningful use guidelines to public health</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Lab automation systems or workcells to which LIS has a direct interface</td>
<td>installed at client sites/installed at client sites/installed at client sites</td>
<td>installed at client sites/installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>LIS supports index field in each test definition for LOINC code</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>LIS provides database flag or field to set time parameters for retaining test results online without being archived?</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>System does not archive (all test results retained online indefinitely but can be purged) query, reports</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Way to transfer test results online</td>
<td>Voice over IP, HL7, FTP</td>
<td>Voice over IP, HL7, FTP</td>
</tr>
<tr>
<td>Method by which users can tailor LIS in their own setting</td>
<td>installed at client sites/installed at client sites/installed at client sites</td>
<td>installed at client sites/installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>Distinguishing product features (supplied by company)</td>
<td><strong>any brand or model</strong></td>
<td><strong>any brand or model</strong></td>
</tr>
</tbody>
</table>

### Additional Information

- **Distinguishing product features (supplied by company)**
  - **any brand or model**
  - **any brand or model**
  - **any brand or model**
- **Features/modules incorporated in product**
  - **Chemistry/Hematology**
  - **Microbiology/Public health microbiology**
  - **Blood bank donor/Blood transfusion**
  - **Surgical pathology/Cytology**
  - **Molecular pathology/Cytogenetics/Flow cytometry**
  - **ERH interface for admission/discharge/transfer (ADT)**
  - **ERH interface for order entry/ERH interface for results reporting**
  - **ERH interface for packaging results into PDF format**
  - **Ad hoc reporting/Rules-based system**
  - **Management and statistical reporting**
  - **Connection to provider offices/Commercial lab functionality**
  - **Compliance checking**
  - **Billing and accounts receivable**
  - **Materials management and inventory**
  - **Test partition/Remote faxing or printing**
  - **Web-based remote inquiry of reports/Web access for order entry**
  - **Specimen management and tracking**
  - **Compliance and quality assurance tools**
  - **Environmental health/Business analytics**
  - **Reference lab interface for orders, results return, status return**

### Product Information

<table>
<thead>
<tr>
<th>Product</th>
<th>Telephone</th>
<th>Web Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allscripts</td>
<td>404-663-8611</td>
<td><a href="http://www.allscripts.com">www.allscripts.com</a></td>
</tr>
<tr>
<td>Aspyra LLC</td>
<td>800-437-9000</td>
<td><a href="http://www.aspyra.com">www.aspyra.com</a></td>
</tr>
</tbody>
</table>

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*Note: As a chatbot assistant, I can provide information on the topics related to the text but cannot perform tasks that require interactive, real-time communication or decision-making.*
### Table of Information

**Name of laboratory information system**
- Cerner Millennium
- CLIN1 Laboratory
- Clinlab LIS

**First ever/Most recent LIS installation (based on August 2018 survey deadline)**
- Cerner Millennium: 1982/August 2018
- CLIN1 Laboratory: 1987/july 2018
- Clinlab LIS: 1987/May 2018

**Total No. of contracts for sites operating LIS**
- 282 domains (not tracked by contract)

**Total No. of sites operating LIS (U.S. hospitals/U.S. independent labs/U.S. clinics or group practices/U.S. public health labs/other U.S. sites/foreign sites)**
- 60

**Types/Locations of foreign installations**
- Australia, Brazil, Canada, Cayman Islands, Egypt, Malaysia, Qatar, Saudi Arabia, Singapore, U.K., U.A.E.
- —
- 10%

**No. of LIS installations between August 2017–August 2018**
- 10%–90%
- —
- 2

**Percentage of high-volume** "sites installed/low-volume sites installed**
- 4
- —
- 35%–65%

**Provide list of installed client sites to potential customers on request**
- yes (partial list of comparable sites)
- no
- yes (partial list of comparable sites)
- no

**Range in No. of user workstations in sites operating LIS**
- 3–150 (average, 10)
- 3–100 (average, 5)

**No. of employees in entire company**
- 26,000+
- 12
- 6

**LIS allows third-party updates of tables and rules**
- no
- no
- no

**LIS provides database flag or field to set time parameters for retaining test results**
- query, reports
- query, reports
- —

**Distinguishing product features (supplied by company)**
- company understands advanced analytical methods required for new protocols, interpretations, and unique data-management requirements
- company will customize interfaces and processors
- staff are laboratory professionals developing tools for research and clinical laboratory professionals (formerly CSOBIM LIS, CLIN1-LIS)
- automatic multi-report styles selection by provider or location
- real-time instrument and HL7 interfaces with release rates
- high-speed TCP/IP interfacing to instrument automation systems

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All information is supplied by the companies listed. The tabulation does not represent an endorsement by the CAP.
<table>
<thead>
<tr>
<th>Feature/Module</th>
<th>Avalon</th>
<th>LabSEM</th>
<th>Beaker Laboratory Information System</th>
</tr>
</thead>
<tbody>
<tr>
<td>** Features/Modules incorporated in product:**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Chemistry/Hematology</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Bar-coded collection labels</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Microbiology/Public health microbiology</td>
<td>Installed at client sites/available but not installed</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Blood bank donor/Blood bank transfusion</td>
<td>Not available/not available</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Surgical pathology/Oncology</td>
<td>Available but not installed/not available</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Molecular pathology/Flow cytometry</td>
<td>Not available/not available/not available</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• EHR interface for admission/discharge/transfer (ADT)</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• EHR interface for order entry/EHR interface for results reporting</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• EHR interface for packaging results into PDF format</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• EHR interface for packaging results into COA1 format/COA2 format</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Ad hoc reporting/Rates-based system</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Management and statistical reporting</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Connection to provider offices/Commercial lab functionality</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Compliance checking</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Billing and accounts receivable</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Materials management and inventory</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Test portfolio/Remote faxing or printing</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• HIPAA-standard transaction formats</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Web-based remote inquiry of reports/Web access for order entry</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Specimen management and tracking</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Compliance and quality assurance tools</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Environmental health/Business analytics</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>• Reference lab interface for orders, results return, status return</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td><strong>LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats</strong>** for:**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Microbiology data (culture and sensitivity)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• Other reportable diseases (blood lead, immunology, etc.)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• Tumor diagnosis and case data to regional cancer registry****</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>LIS provides database flag or field to set time parameters for retaining test results online without being archived?</strong></td>
<td>Yes, for HIV and STD tests (all test results can be retained online [not archived] for the life of LCS)</td>
<td>None (planned for future)</td>
<td>None (planned for future)</td>
</tr>
<tr>
<td><strong>How test results retained online are made available?</strong></td>
<td>Beckman Coulter, Siemens, Roche Diagnostics, Abbott Diagnostics</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lab automation systems or workcells to which LIS has a direct interface</strong></td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td><strong>LIS functionality available via ASP or cloud-based data center available as a local server or an ASP or cloud-based product (client's option)</strong></td>
<td>Combination of direct interfaces and middleware</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td><strong>Use of third-party middleware for LIS–instrument interfaces</strong></td>
<td>No (interface directly)</td>
<td>Combination of direct interfaces and middleware</td>
<td>Installed at client sites</td>
</tr>
<tr>
<td><strong>Standard software maintenance fee covers periodic updates to LIS</strong></td>
<td>Yes (standard charge)</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td><strong>Cost for smallest existing LIS install includes hardware, software, install, training</strong></td>
<td>By request</td>
<td>Installed at client sites</td>
<td>Installed at client sites/installed at client sites</td>
</tr>
<tr>
<td><strong>Distinguishing product features (supplied by company)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ease of use and training</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• ease of integration with other products</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• ease of access to database for internal use</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• cost</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• performance</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• reliability</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• seamless native data transfer from LIS to EMR without need for interfaces or translation tables</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• integrated PPD specimen collection with end-to-end specimen tracking from ordering to sample storage</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• customer-driven development philosophy</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>• customers guide the design, direction, and prioritization of development</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Note: dash as an answer means company did not respond or question is not applicable*
### LABORATORY INFORMATION SYSTEMS

#### FEATURES/MODULES INTEGRATED IN PRODUCT:

- **Chemistry/Hematology**
- **Immunology**
- **Microbiology**
- **Blood bank donor/blood bank transfusion**
- **Molecular pathology/Cytogenetics/Flow cytometry**
- **EHR interface for admission/discharge/transfer (ADT)**
- **EHR interface for order entry/EHR interface for results reporting**
- **EHR interface for packaging results into CDA1 format/CDA2 format**
- **EHR interface for packaging results into PDF format**
- **Molecular pathology/Cytogenetics/Flow cytometry**
- **Specimen management and tracking**
- **Compliance and quality assurance tools**
- **Environmental health/business analytics**
- **Reference lab interface for orders, results return, status return**

#### LIS INSTALLATIONS BETWEEN AUGUST 2017–AUGUST 2018:

- **No. of LIS installations**
- **No. of sales of LIS**

#### COST FOR SMALLEST EXISTING LIS INSTALL:

- **Product (client's option):**
  - **Standard software maintenance fee covers periodic updates to LIS**
  - **Fee for software modifications to comply with federal regulations and laws**
  - **LIS functionality available via ASP or cloud-based data center**

#### OTHER INFORMATION:

- **LIS providers database flag or field to set time parameters for retaining test results online without being archived**
- **How test results retained online are made available**

#### LABORATORY INFORMATION SYSTEMS

#### LABORATORY AUTOMATION SYSTEMS OR WORKCELLS TO WHICH LIS HAS A DIRECT INTERFACE:

- **Beckman Coulter, Siemens, Ortho, Labotix Automation**
- **Tumor diagnosis and case data to regional cancer registry**
- **Microbiology data (culture and sensitivity)**
- **Environmental health/business analytics installed at client sites**
- **Compliance and quality assurance tools installed at client sites**
- **Specimen management and tracking not available installed at client sites**
- **EHR interface for admission/discharge/transfer (ADT)**
- **EHR interface for order entry/EHR interface for results reporting**
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- **Specimen management and tracking not available installed at client sites**
- **Compliance and quality assurance tools installed at client sites**
- **Environmental health/business analytics installed at client sites**

#### REFERENCES:

- **Forex Corporation, New York, NY, is a subsidiary of MNC, Inc.**
- **Onsite training and support for all end users**
- **Fully integrated EHR and ONC-certified HIT**
- **Reasonable pricing for all sizes of labs; stable, reliable, flexible system for all types of labs**
- **Quick installation and implementation; 24/7 support**
- **Onsite training and support for all end users**
- **Integration of billing, EHR interfaces**
- **System continues uninterrupted**
- **Cost for smallest existing LIS install (includes hardware, software, install, training)**

#### CONTACT INFORMATION:

- **Evident LLC, 800-729-2085**
- **Evident Laboratory Systems, 800-729-2085**
- **ILIxx Medical, 917-338-5377**

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### Distinguishing product features

<table>
<thead>
<tr>
<th>Feature/Module</th>
<th>LabSoft</th>
<th>LabWare</th>
<th>LigoLab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microscopy data (culture and sensitivity)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Other reportable diseases (blood lead, immunology, etc.)</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Labosoft</td>
<td>yes (all test results can be retained online [not archived for the life of LIS])</td>
<td>yes (all test results can be retained online [not archived for the life of LIS])</td>
<td>yes (all test results can be retained online [not archived for the life of LIS])</td>
</tr>
<tr>
<td>How test results retained online are made available</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Lab automation systems or workcells to which LIS has a direct interface</td>
<td>—</td>
<td>Beckman Coulter, Siemens, Olympus America, Roche Diagnostics</td>
<td>Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Olympus America, Roche Diagnostics, Abbott</td>
</tr>
<tr>
<td>LMS allows third-party updates of tables and rules</td>
<td>yes (using standard code tables; other options)</td>
<td>yes (using standard code tables; other options)</td>
<td>yes (using standard code tables; other options)</td>
</tr>
<tr>
<td>LIS allows for image capture, display, reporting</td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Use of third-party middleware for LIS–instrument interfaces</td>
<td>no (interface directly)</td>
<td>combination of direct interfaces and middleware</td>
<td>no (interface directly)</td>
</tr>
<tr>
<td>LIS supports use of SNOMED CT</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Standard software maintenance fee covers periodic updates to LIS</td>
<td>yes standard (no charge)</td>
<td>yes standard (no charge)</td>
<td>yes standard (no charge)</td>
</tr>
<tr>
<td>Fee for software modifications to comply with federal regulations and laws</td>
<td>$10,000 (annual maintenance fee, $1,000)</td>
<td>$15,000 (annual maintenance fee, $18,000)</td>
<td>$15,000 (annual maintenance fee, $18,000)</td>
</tr>
<tr>
<td>Cost for largest existing LIS install</td>
<td>no (interface directly)</td>
<td>no (interface directly)</td>
<td>no (interface directly)</td>
</tr>
<tr>
<td>Distinguishing product features (supplied by company)</td>
<td>—</td>
<td>yes (optional; yes in person)</td>
<td>yes (optional; yes in person)</td>
</tr>
<tr>
<td>LabSoft</td>
<td>ad hoc query tools, user-defined interfaces, dictionary settings, rules engine, workflow-configuration tools, others</td>
<td>ad hoc query tools, user-defined interfaces, dictionary settings, rules engine, workflow-configuration tools, others</td>
<td>ad hoc query tools, user-defined interfaces, dictionary settings, rules engine, workflow-configuration tools, others</td>
</tr>
<tr>
<td>LabWare</td>
<td>—</td>
<td>yes (using API functionality)</td>
<td>yes (using API functionality)</td>
</tr>
<tr>
<td>LigoLab</td>
<td>—</td>
<td>yes (using API functionality)</td>
<td>yes (using API functionality)</td>
</tr>
</tbody>
</table>
**LABORATORY INFORMATION SYSTEMS**

**NOVEMBER 2018 | CAP TODAY | 47**

### NetLIMS

**LabOS**

- **Name of laboratory information system**
- **Operating systems(s)**
- **Databases and tools**
- **Languages (other than English) offered on system**
- **Hold and accountability for server**
- **Connections to additional systems**
- **Management and statistical reporting**
- **Environmental health/Business analytics**
- **Connection to provider offices/Commercial lab functionality**
- **Compliance checking**
- **Billing and accounts receivable**
- **Materials management and inventory**
- **Test partitition/Remote faxing or printing**
- **Web-based standard transaction formats**
- **Web-based remote inquiry of reports/Web access for order entry**
- **Specimen management and tracking**
- **Compliance and quality assurance tools**
- **Reference lab interface for orders, results return, status return**
- **USC can report lab data that is focused on meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**
- **LIS provides database flag or field to set time parameters for retaining test results**
- **Languages (other than English) offered on system**
- **Programming language(s)**
- **Features/modules incorporated in product:**
  - **Chemistry/Immunohistochemistry**
  - **Bar-coded collection labels**
  - **Microbiology/Public health microbiology**
  - **Blood bank data/Blood bank transfusion**
  - **Surgical pathology/Cytology**
  - **Molecular pathology/Cytagenetics/Flow cytometry**
  - **EHR interface for admission/discharge/transfer (ADT)**
  - **EHR interface for order entry/EHR interface for results reporting**
  - **EHR interface for packaging results into PDF format**
  - **Ad hoc reporting/Rules-based system**
  - **Specimen management and tracking**
  - **Impression and report generator**
  - **Reference lab interface for orders, results return, status return**
  - **LIS can report lab data that is focused on meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**
  - **LIS provides database flag or field to set time parameters for retaining test results**
  - **Languages (other than English) offered on system**
  - **Programming language(s)**
  - **Features/modules incorporated in product:**
    - **Chemistry/Immunohistochemistry**
    - **Bar-coded collection labels**
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    - **EHR interface for admission/discharge/transfer (ADT)**
    - **EHR interface for order entry/EHR interface for results reporting**
    - **EHR interface for packaging results into PDF format**
    - **Ad hoc reporting/Rules-based system**
    - **Specimen management and tracking**
    - **Impression and report generator**
    - **Reference lab interface for orders, results return, status return**

---

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**All information is supplied by the companies listed. The tabulation does not represent an endorsement by the CAP.**
<table>
<thead>
<tr>
<th>Part 8 of 11</th>
<th>Laboratory Information Systems</th>
<th>Laboratory Information Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of laboratory information system</td>
<td>Orchard Sequia</td>
<td>WorkPath</td>
</tr>
<tr>
<td>Total No. of contracts for sites operating LIS</td>
<td>1993/anticipated 2019</td>
<td>2008/anticipated 2018</td>
</tr>
<tr>
<td>No. of LIS installations between August 2017–August 2018</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total No. of sites operating LIS (U.S. hospitals/U.S. independent labs/U.S. clinics or group practices/U.S. public health labs/other U.S. sites/foreign sites)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Types/Local of foreign installations</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>No. of LIS installations between August 2017–August 2018</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Percentage of high-volume*** sites installed/low-volume*** sites installed</td>
<td>0/0</td>
<td>25%/75%</td>
</tr>
<tr>
<td>Percentage of sites where no company has other software installed</td>
<td>—</td>
<td>20%</td>
</tr>
<tr>
<td>Foreign countries where company actively markets LIS</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>No. of employees in entire company</td>
<td>263</td>
<td>—</td>
</tr>
<tr>
<td>No. of employees dedicated to LIS development, installation, and support</td>
<td>—</td>
<td>15</td>
</tr>
<tr>
<td>Range in No. of user workstations in sites operating LIS</td>
<td>182</td>
<td>—</td>
</tr>
<tr>
<td>Central hardware or service type</td>
<td>HP Business Class</td>
<td>Amazon Web Services</td>
</tr>
<tr>
<td>How central server failure is handled</td>
<td>manual intervention necessary to restore operation or system continues uninterrupted (user’s option)</td>
<td>system continues uninterrupted</td>
</tr>
<tr>
<td>Operating system(s)</td>
<td>Windows agnostic–Linux, Windows, Mac, BSD, Solaris, others</td>
<td>Dell servers</td>
</tr>
<tr>
<td>System includes full transaction logging</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Languages (other than English) offered on system</td>
<td>yes, for genetic tests (genetic test results can be retained online [not archived] for the life of LIS) reporting</td>
<td>yes (all test results can be retained online [not archived] for the life of LIS)</td>
</tr>
<tr>
<td>No. of LIS installations between August 2017–August 2018</td>
<td>0</td>
<td>2–500 (average, 50)</td>
</tr>
<tr>
<td>No. of LIS installations between August 2017–August 2018</td>
<td>3</td>
<td>4–95 (average, 20)</td>
</tr>
<tr>
<td>LIS functionality available via ASP or cloud-based data center</td>
<td>available as a local server or an ASP or cloud-based product (client’s option)</td>
<td>available as a local server or an ASP or cloud-based product (client’s option)</td>
</tr>
<tr>
<td>Cost for largest existing LIS install (includes hardware, software, install, training)</td>
<td>$250,000 (annual maintenance fee, $35,000)</td>
<td>$200,000 (annual maintenance fee, $60,000)</td>
</tr>
<tr>
<td>Cost for smallest existing LIS install (includes hardware, software, install, training)</td>
<td>$4,200,000 (annual maintenance fee, $500,000)</td>
<td>$95,000 (annual maintenance fee, $30,000)</td>
</tr>
<tr>
<td>Distinguishing product features (supplied by company)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*any brand or model</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>generate &gt;500,000 billed tests annually, or &gt;200 bed hospitals, or &lt;500 requisitions per day</strong>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>***generate &lt;500,000 billed tests annually, or &lt;200 bed hospitals, or &gt;500 requisitions per day ***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>****HL7 2.5.1, LOINC, SNOMED, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. provides database flag or field to set time parameters for retaining test results online without being archived?</td>
<td>yes (all test results can be retained online [not archived] for the life of LIS)</td>
<td>yes, for genetic tests (genetic test results can be retained online [not archived] for the life of LIS) reporting</td>
</tr>
<tr>
<td>U.S. provides database flag or field to set time parameters for retaining test results online without being archived?</td>
<td>yes, for genetic tests (genetic test results can be retained online [not archived] for the life of LIS) reporting</td>
<td>yes (all test results can be retained online [not archived] for the life of LIS)</td>
</tr>
<tr>
<td>LIS allows third-party updates of tables and rules</td>
<td>yes</td>
<td>—</td>
</tr>
<tr>
<td>LIS allows for image capture, display, reporting</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>LIS allows indexed field in each test definition for LOINC code</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>LIS provides interface for admission/discharge/transfer (ADT)</td>
<td>available but not installed</td>
<td>not available/available but not installed</td>
</tr>
<tr>
<td>LIS provides interface for order entry</td>
<td>available but not installed</td>
<td>installed at client sites/installed at client sites</td>
</tr>
<tr>
<td>LIS provides interface for packaging results into COA format/COA2 format</td>
<td>available but not installed</td>
<td>available but not installed/installed at client sites</td>
</tr>
<tr>
<td>LIS provides interface for packaging results into CDI format</td>
<td>available but not installed</td>
<td>available but not installed/installed at client sites</td>
</tr>
<tr>
<td>LIS provides reference interface to CDI</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>LIS can report lab data that is focus of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats*** for:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Microbiology data (culture and sensitivity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Other reportable diseases (blood lead, immunology, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Other reportable diseases (blood lead, immunology, etc.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Tumor diagnosis and code to regional cancer registry****</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIS provides database flag or field to set time parameters for retaining test results online without being archived?</td>
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<td>yes, for genetic tests (genetic test results can be retained online [not archived] for the life of LIS) reporting</td>
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</tr>
<tr>
<td>LIS allows reference interface to CDI</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>LIS allows third-party updates of tables and rules</td>
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<td>LIS allows for image capture, display, reporting</td>
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</tr>
<tr>
<td>LIS allows reference interface to CDI</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**Note:** A dash as an answer means company did not respond or question is not applicable.
### Laboratory Information Systems

**Part of 11**

**See captodayonline.com/productguides** for an interactive version of guide

---

**Name of laboratory information system**

<table>
<thead>
<tr>
<th>Software</th>
<th>Vendor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoftLab</td>
<td>Ellis Vahanian</td>
<td><a href="mailto:ellis@softcomputer.com">ellis@softcomputer.com</a></td>
</tr>
<tr>
<td>Schuyler House</td>
<td>Janet Chenault</td>
<td><a href="mailto:jhc@schuylerhouse.com">jhc@schuylerhouse.com</a></td>
</tr>
<tr>
<td>SurroMed</td>
<td>Lisa M. Turgeon</td>
<td><a href="mailto:lisa@sidisi.com">lisa@sidisi.com</a></td>
</tr>
</tbody>
</table>

---

**First ever/Most recent LIS installation (based on August 2018 survey deadline)**

<table>
<thead>
<tr>
<th>Software</th>
<th>Vendor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoftLab</td>
<td>Ellis Vahanian</td>
<td><a href="mailto:ellis@softcomputer.com">ellis@softcomputer.com</a></td>
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</tr>
</tbody>
</table>

---

**Total No. of contracts for systems LIS**

<table>
<thead>
<tr>
<th>Software</th>
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<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Lisa M. Turgeon</td>
<td><a href="mailto:lisa@sidisi.com">lisa@sidisi.com</a></td>
</tr>
</tbody>
</table>

---

**Total No. of sales of LIS as of August 2018**

<table>
<thead>
<tr>
<th>Software</th>
<th>Vendor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoftLab</td>
<td>Ellis Vahanian</td>
<td><a href="mailto:ellis@softcomputer.com">ellis@softcomputer.com</a></td>
</tr>
<tr>
<td>Schuyler House</td>
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<td><a href="mailto:jhc@schuylerhouse.com">jhc@schuylerhouse.com</a></td>
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<tr>
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<td>Lisa M. Turgeon</td>
<td><a href="mailto:lisa@sidisi.com">lisa@sidisi.com</a></td>
</tr>
</tbody>
</table>

---

**Total No. of LIS installations worldwide as of August 2018**

<table>
<thead>
<tr>
<th>Software</th>
<th>Vendor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoftLab</td>
<td>Ellis Vahanian</td>
<td><a href="mailto:ellis@softcomputer.com">ellis@softcomputer.com</a></td>
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<td>Lisa M. Turgeon</td>
<td><a href="mailto:lisa@sidisi.com">lisa@sidisi.com</a></td>
</tr>
</tbody>
</table>

---

**Total No. of LIS installations between August 2017–August 2018**

<table>
<thead>
<tr>
<th>Software</th>
<th>Vendor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoftLab</td>
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<td>Lisa M. Turgeon</td>
<td><a href="mailto:lisa@sidisi.com">lisa@sidisi.com</a></td>
</tr>
</tbody>
</table>

---

**Percentage of high-volume LIS system installations**

<table>
<thead>
<tr>
<th>Software</th>
<th>Vendor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Lisa M. Turgeon</td>
<td><a href="mailto:lisa@sidisi.com">lisa@sidisi.com</a></td>
</tr>
</tbody>
</table>

---

**No. of employees in entire company**

<table>
<thead>
<tr>
<th>Software</th>
<th>Vendor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoftLab</td>
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**Range in No. of user workstations in systems operating LIS**

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**How central server failure is handled**

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**Languages (other than English) offered on system**

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LABORATORY INFORMATION SYSTEMS

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**Distinguishing product features (supplied by company)**

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### Laboratory Information Systems Features

#### First ever
- Most recent LIS installation based on August 2018 survey deadline
- Total No. of contracts for sites operating LIS
- Total No. of users of LIS between August 2017–August 2018
- Total No. of LIS installations during August 2017–August 2018
- Percentage of high-volume** sites installed/low-volume*** sites installed
- Percentage of where company has no other software installed
- Foreign countries where company actively markets LIS
- Provide list of installed client sites to potential customers on request
- Clients restricted from sharing their experience with company or LIS
- No. of employees in entire company
- No. of employees dedicated to LIS development, installation, and support
- Range in No. of user workstations in sites operating LIS
- Total No. of sites operating LIS (U.S. hospitals/U.S. independent labs/U.S. clinics or group practices/U.S. public health labs/other U.S. sites/foreign sites)
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#### Features

- **Chemistry/Hematology**
- **Bar-coded collection labels**
- **Microbiology/Public health microbiology**
- **Blood bank donor/Blood bank transfusion**
- **Surgical pathology/Cytology**
- **Molecular pathology/Cytogenetics/Flow cytometry**
- **EHR interface for admission/discharge/transfer (ADT)**
- **EHR interface for order entry/EHR interface for results reporting**
- **EHR interface for packaging results into PDF format**
- **EHR interface for packaging results into CDX1 format/CDX2 format**
- **Ad hoc reporting/Rules-based system**
- **Management and statistical reporting**
- **Connection to provider offices/Commercial lab functionality**
- **Compliance checking**
- **Billing and accounts receivable**
- **Materials management and inventory**
- **Test partition/Remote faxing or printing**
- **HIPAA-standard transaction formats**
- **Web-based remote inquiry of reports/Web access for order entry**
- **Specimen management and tracking**
- **Compliance and quality assurance tools**
- **Environmental health/Business analytics**
- **Reference lab interface for orders, results return, status return**

#### LIS can report lab data that is of meaningful use guidelines to public health agencies via automated electronic transmission using specified formats**** for:
- **Microbiology data (culture and sensitivity)**
- **Other reportable diseases (blood lead, immunology, etc.)**
- **Tumor diagnosis and case data to regional cancer registry*****

#### LIS provides database flag or field to set time parameters for retaining test results:
- **how test results retained online are made available**

#### Lab automation systems or worklists to which LIS has a direct interface:
- yes (all test results can be retained online [not archived] for the life of LIS)
- cumulative reports
- Beckman Coulter, Siemens, Thermo Scientific, Olympus America, Roche Diagnostics, Abbott Diagnostics
- yes, for user-defined tests (user-defined test results can be retained online [not archived] for the life of LIS)
- query, cumulative reports, expert rules, other options
- Beckman Coulter, Siemens, Ortho, Labotix Automation, Olympus, Roche, Abbott, others
- no
- preliminary reports, query, cumulative reports
- Beckman Coulter, Siemens, Ortho Clinical Diagnostics, Roche Diagnostics, Abbott Diagnostics

#### LIS allows third-party updates of tables and rules
- yes (using 3M, CAP, AMIA)
- no

#### LIS allows for image capture, display, reporting
- yes
- yes
- yes

#### LIS provides indexed field in each test definition for LOINC code
- yes
- yes
- yes

#### LIS supports use of SHMOM CT
- yes
- yes
- yes

#### Use of third-party middleware for LIS--instrument interfaces
- combination of direct interfaces and middleware
- yes (built into SimpleLIMS)
- no
- escrow/yes (via webinar)

#### Standard software maintenance fee covers periodic updates to LIS
- yes (standard)
- no (charge)
- yes (only option)
- $10,000 per month to $50,000 per month

#### Fee for software modifications to comply with federal regulations and laws LIS functionality available via ASP or cloud-based data center
- yes (standard)
- no (charge)
- yes (only option)
- $10,000 per month to $50,000 per month

#### Cost for smallest existing LIS install (includes hardware, software, install, training)
- Distinguishing product features (supplied by company)
  - any brand or model
  - **generate**: >50,000 billed tests annually, or >200 bed hospitals, or >500 requisitions per day
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  - Note: a dash as an answer means company did not respond or question is not applicable

#### BUSINESS SPEAK

- **Multitab test routing/sharing for medium to large expanding health systems and independent labs**
- **Integrated AP and molecular/genetics solutions**, EHR integration, and comprehensive outreach
- **Multi-disciplinary lab workflow and reporting, including precision medicine and digital pathology**
- **Business intelligence dashboard—real-time information available at user’s fingertips with no need to pull reports**
- **Alerts via email or SMS allow quick response to critical results and significant infections**
- **Patient results portal**

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**Note:** a dash as an answer means company did not respond or question is not applicable.
**Name of laboratory information system**

| XIFIN LIS 5† |

**First ever** Most recent LIS installation (based on August 2018 survey deadline)  
2004/July 2018  
56  
5  

**Total No. of contracts for sites operating LIS**  
53 (3/31/2018-9/1/2017)  

**Total No. of sites operating LIS U.S. hospitals/U.S. independent labs/U.S. clinics or group practices/U.S. public health labs/other U.S. sites/foreign sites**

- **Types/Locations of foreign installations** independent labs/China, Holland  
- **No. of LIS installations between August 2017–August 2018**  
  - **Percentage of high-volume** sites installed/unlow-volume*** sites installed
  - 45%/55%  
  - 75%  
- **Percentage of sites where no other software installed** none  

**Provide list of installed client sites to potential customers on request**

- **Clients restricted from sharing their experience with company or LIS** no  

**No. of employees in entire company** 310  

**No. of employees dedicated to LIS development, installation, and support** 32  

**Range No. of user workstations in sites operating LIS** 15–140 (average, 78)  

**Central hardware or service type** software-as-a-service (hardware independent)  

**How central server failure is handled** system continues uninterrupted  

**Programmed language(s)**

- **Operating system(s)** C#, .Net  
- **Databases and tools** Windows  
- **System includes full transaction logging** yes  
- **Languages (other than English) offered on system** Chinese  

**Features/modules incorporated in product:**

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| **Cost for largest existing LIS install (includes hardware, software, install, training)**
| for the life of LIS |
| **Fee for software modifications to comply with federal regulations and laws**|
| standard (no charge) |
| **LIS can report lab data that is of meaningfull use guidelines to public health agencies via automated electronic transmission using specified formats** |
| for: |  
| **Microbiology data (culture and sensitivity)** yes  
| **Other reportable diseases (blood lead, immunology, etc.)** yes  
| **Tumor diagnosis and case to regional cancer registry** yes  

**LIS provides database flag or field to set time parameters for retaining test results online without being archived**

**How test results retained online are made available**

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| **Provide LIS clients with company’s own positive patient ID software to identify patients and blood specimens collected at bedside**  
| **US interfaces to third-party positive patient ID software used at bedside**  
| **Source code/user group that meets on established schedule**  
| **Methods by which users can tailor LIS in their own setting**  
| **Standard software maintenance fee covers periodic updates to LIS** |
| **Cost for smallest existing LIS install (includes hardware, software, install, training)**
| **Distinguishing product features (supplied by company)** |
| **INSTRUMENTS** |
| **SOFTWARE SYSTEMS** |

**Laboratory information systems**

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**INSTRUMENTS**

- AP automation: tissue processors, embedders, microtomes, stainers  
- Automated molecular platforms  
- Bedside glucose testing systems  
- Chemistry and immunoassay analyzers for point-of-care and low-volume laboratories  
- Chemistry and immunoassay analyzers for mid- and high-volume laboratories  
- Coagulation analyzers  
- Coagulation analyzers—point of care, self-monitoring  
- Hematology analyzers  
- In vitro blood gas analyzers  
- Laboratory automation systems and workcells  
- Next-generation sequencing instruments  
- Urinalysis instrumentation  

**SOFTWARE SYSTEMS**

- Anatomic pathology computer systems  
- Billing/accounts receivable/RCM systems  
- Blood bank information systems  
- Laboratory information systems  
- Laboratory-provider links software  
- Positive patient identification products

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