From Inside Psychē

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Psychē Software as it can be applied to the needs of the Cytology Lab

Overview:

Laboratory Information Systems (LIS) have enabled many advances in the laboratory to support patient care. In the field of cytology, a comprehensive LIS can help Cytotechnologists, Pathologists and laboratory owners efficiently meet the needs of the lab as a business. Some examples are a streamlined workflow, regulatory compliance, and superior reporting capabilities. Internal efficiencies may include, instrument interfacing to assist with automation of placing orders and receiving results back into a LIS. Externally, the LIS can be integrated to electronic medical records (EMR) systems and web-based outreach solutions with each being linked to a physician practice or hospital system. The incorporation of these internal and external efficiencies will support the reduction of human error by restructuring the way a test may be ordered, results are entered and how results are received by an ordering physician.

As early as 1983, software programs that assist in the production of large volumes of testing handled by cytology laboratories, were developed to aid laboratory staff in providing accurate reports to physicians. Early systems included many of the features that are still standard today, including report distribution, data storage and elementary dating mining. Over the past thirty years, Psychē Systems has made significant leaps in our software capabilities. We can tailor our software to support the unique workflow of individual laboratories with automated enhancements (bar code labeling, specimen tracking, automated and customized report delivery, reflex testing, billing system interfaces, custom report formatting and electronic order entry to name a few). This provides the laboratory personnel with the resources necessary to focus on what they do best: processing orders and resulting tests.

Typical Work Flow:

All orders that are inbound to the laboratory must be reconciled with a matching specimen, including the proper identifiers. Once this process has been completed, the orders are accessioned. Accessioning may occur by entering the data manually or finding the orders placed electronically which is considered a more automated process. A “case” number is assigned which follows the case through the diagnosis and final report. Each order is considered a unique case. Labels may be generated at this time, if necessary.

Specimens are able to be processed and depending on the specimen types and order type, the specimen processing follows its own specific workflow. Once processed and stained, a Cytotechnologist and/or Pathologist will screen the case and enter a diagnosis directly into the software. Psychē has a few different methods for diagnosis entry; typing directly into the LIS, using voice recognition software or working with pre-defined library items.

One of the most common workflows includes that which Pap tests follow. When a Pap case is Negative, a Cytotechnologist will sign out the case and the report will be distributed to the submitting physician's office. A standard 10% percent of these Negative cases will automatically be flagged for a quality review rescreen per CAP and CLIA compliance. The lab may also increase this percentage per individual if desired for new employee evaluation or retraining purposes. Some labs and physicians are allowing their patients direct access to negative results through our secure web portal access.

Cases that are positive for cellular abnormality are flagged for Review and sent to a pathologist for final diagnosis. Our software allows the pathologist to edit, add additional testing or keep the original diagnosis set by the Cytotechnologist.

For high volume laboratories this workflow relies heavily on the LIS to organize cases by their needs, sending rescreens and abnormal cases to the appropriate parties, and automatically routing finalized reports directly to their client's offices.

Software to meet regulatory needs:

Our Anatomic Pathology software WindoPath, forces users to comply with regulations. WindoPath adheres to guidelines set forth by regulatory bodies and industry associations such as CMS, CAP, and the CLIA guidelines. With Psychē Systems software you can restrict users access so they are only allowed to perform functions they are qualified to do based on official regulations. For example, the laboratory can set the maximum-slide-per-day limit for Cytotechnologist and can be alerted when they reach this limit to prohibit them from exceeded it.

Other efficiencies:

When any of Psychē Systems LIS software is interfaced to laboratory equipment, it will reduce errors associated with manual data entry. Psychē Systems LIS software can accept the data directly from the instrumentation, add it to the appropriate case, and advance it to the next step. Orders can also come directly from the LIS to the equipment, in a bi-directional interface.

If the LIS can be integrated with a web-based outreach module, orders from physicians can be directly placed, along with all pertinent patient information so that when the sample is collected, the LIS has all the information necessary to rapidly process the test. Then the report can be delivered electronically back to the physician. The physician, or their office, will also have the ability to track the progress of the test via the secure login 24/7.

Reporting:

The key to this entire process is the final report. The ordering physician's report is the final product of the laboratory. The report represents all the work done by the laboratory and the results of the tests ordered. Reports should be distributed to those who ordered them in the manner they want to see them – both in the order they want to see the information and through the delivery mechanism they choose – whether electronic, direct to an EMR, faxed, or printed directly within the physician's office. Highly customized report formatting is just one of the features our laboratory information systems provide.

Summary:

In conclusion, a well-written and implemented LIS tailored toward the specific workflows of various laboratories will allow for increased efficiencies, regulatory compliance, and a complete report on patient health. A system that is integrated with laboratory instrumentation will allow for automated processes and reduce errors associated with manual data entry of results. Errors are also reduced when the system allows for electronic order entry, barcode requisition and sample scanning, thus minimizing the amount of patient data that needs to be manually entered. Given the rules-based nature of advanced information systems, regulatory compliance is built into laboratory software logic, freeing technicians to do what they do best, reading slides and interpreting results without worrying about compliance issues or monitoring rescreens. Our software does that for them. Reports tailored to client preference with the ability to provide a complete picture of the history, as well as current results, provide physicians with the information necessary to treat their patients with the best possibility for positive outcomes.

About Melissa Franklin, CT (ASCP)cm

Melissa joined Psychē Systems in 2016. Before coming to Psychē she worked in the laboratory as a Senior Cytotechnologist for 7 years. She currently is a Project Manager for our e.lixa division but before that she was our lead WindoPath Application Specialist/Trainer. Melissa as a Bachelor of Science in Biology from Mount Saint Mary College and a Master's in Clinical Laboratory Science with a focus in Cytotechnology from the University of Rhode Island.