How Lab Informatics Technologies Help Meet Evolving Healthcare Needs

As U.S. healthcare providers (HCPs) navigate a changing healthcare climate, diagnostic laboratories are playing an increasingly important role in helping them prevent medical errors, lower readmission rates, and improve patient care. This climate of change is being driven in part by the rising costs of care, a surge in chronic disease prevalence, and expansion of care for aging populations.

To help laboratories keep pace with these demands and provide solutions to help doctors evaluate patients faster, Abbott (Abbott Park, IL) has launched version 11 of the STARLIMS software-based laboratory information management system (LIMS). The new version expands access to data through a variety of mobile platforms and applications (apps), empowers users to gain insight from their data using advanced analytics, and enables cloud services through a subscription.

**Mobile device applications for accessing patient data in a new way**

In 2014, the federal government will expect HCPs to use electronic health records (EHRs) to help meet the standards outlined in stage two (Stage 2) of the meaningful use guidelines.1 These new requirements mean that labs also need to adjust how they order tests, report results, and engage with patients.

As a result of these factors, labs are facing increasing pressures to deliver accurate test results even faster. Mobile device apps are one method that can help meet these challenges, as apps offer labs the ability to access and evaluate data anytime and anywhere. The new version of STARLIMS includes mobile device apps linked to software-based LIMS, which eliminates the need to be physically present to access data. These benefits offer different users the ability to secure on-the-spot access to laboratory test results.

One constraint many clinicians face is the need to constantly be on the move. Formerly, time away from the office meant time away from their computers and, hence, access to the data they require. With the advent of tablet devices and smartphones, clinicians can analyze report data and make decisions while away from their desk. For example, clinicians can gather data at the patient’s bedside and see authorized results in real-time. Patients can also upload results from testing they perform themselves, such as checking their blood glucose, which can subsequently be reviewed by the physician. These new methods for tracking results may ultimately allow clinicians to provide better patient care.

Another benefit of on-the-spot access to lab results is that lab managers can now release an urgent sample or check on lab operations from anywhere. Critical management personnel can stay constantly connected; thus lab personnel are not held up waiting for them to return to their desks. Furthermore, when laboratory technicians are in the field collecting samples, they no longer have to wait until they return to the office to enter or track data. Now, they can use smartphones or tablets to enter sample data and field observations, confirm their location using GPS, and take pictures of the sample site.

**STARLIMS advanced analytics for evaluating data differently**

Another way technology is helping to improve healthcare is through the pairing of advanced analytics with interactive visualization methods. In an environment flooded with information, it is essential for labs to be able to intelligently convert information into knowledge and act upon it. This technology helps HCPs see and understand data differently, gain new insights, as well as identify bottlenecks, opportunities, and trends to make better decisions.

It is hard to find any lab that has less data today than a year ago. What laboratories are really interested in is knowledge and the ability to share it. With the STARLIMS advanced analytics feature, labs can now interact with these data to reach decisions related to test turnaround time, disease surveillance, and even clinical decisions. Being able to have these types of interactions with data is important for several reasons, including faster turnaround time, better case management, and the ability to rapidly respond to questions posed related to test results.

**Cloud services and lab efficiency**

In recent years, the demand to manage data through cloud services has increased as laboratory informatics organizations plan to accelerate productivity and focus on their business while reducing the need to manage LIMS infrastructure. Research suggests that cloud demand will grow significantly: According to a 2013 global survey of chief information officers (CIOs), 28% of CIOs expect to source all critical applications and operations via cloud by 2016, and more than half of them, 55%, expect to do so by 2020.2 Additional data indicate that the total spending on cloud services will likely increase from $132 billion in 2013 to $244 billion in 2017.3

To help address the increasing need for a variety of cloud computing models, in March 2013, Abbott announced the launch of the company’s STARLIMS Cloud Services. These services include delivering STARLIMS Web-based applications by the means of both public and private cloud models. A public cloud system allows users to access their LIMS via cloud by 2016, and more than half of them, 55%, expect to do so by 2020.

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* Data from Gartner’s 2013 CIO priorities survey, which indicates that 28% of CIOs expect to source all critical applications and operations via the cloud by 2016, and 55% expect to do so by 2020—Hunting and Harvesting in a Digital World: The 2013 CIO agenda. See Fig. 19; Jan 2013.
Cloud services will continue to play an expanding role as laboratory informatics organizations shift to make critical business applications, such as LIMS, part of their cloud strategy versus the traditional on-premise installation. Cloud empowers organizations to be more agile and responsive to the needs of their business while saving on deployment time, infrastructure, and IT resources when implementing laboratory informatics solutions.

Clinical laboratories are on the verge of an incredible technology revolution that could reshape the delivery of healthcare as we currently know it. While it is difficult to imagine this dynamic before the advent of emails and the Internet, in a few short years, it will be hard to imagine what healthcare and laboratories looked like before the advent of mobile apps, data analytics, and cloud technologies.

References


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