



San Mateo County's Public Health Laboratory Utilizes Information System Harvest LIS to Support Clinical & Environmental

San Mateo, Spanish for Saint Matthew, is a county with over 700,000 residents, located in the San Francisco Bay area of California that covers most of the San Francisco Peninsula just south of San Francisco. San Mateo County's Public Health Laboratory serves as a first line of defense to protect the public against communicable diseases and other health hazards. The laboratory provides clinical diagnostic testing, environmental testing, emergency response support, applied research, laboratory training, and other essential services to their community.

"We function somewhat like a reference laboratory, in that we do not see patients," said Dr. Bruce Fujikawa, Director of the Public Health Laboratory.

San Mateo joined forces with Orchard in 2007 when their previous laboratory information system was sunsetted; they now have Orchard® Harvest™ LIS and the Microbiology module.

Employing a staff of 11 and performing approximately 91,000 tests annually, San Mateo County's laboratory is unique in that it provides two distinct testing menus. "We have two Harvest databases, one for clinical testing and one for environmental testing," explained Dr. Fujikawa. Orchard's Harvest LIS allows San Mateo the flexibility to customize many of the testing fields and configure a specialized test menu for their environmental testing side. For example, in their environmental database, they are able to re-label many of the fields to accommodate parameters needed for

their water testing. The adaptability of Harvest LIS made this an easy task.

This flexibility, coupled with the ease of use, was what initially attracted San Mateo to the Orchard Harvest LIS. "When we looked at Orchard Harvest to evaluate which system to purchase, Orchard's product was friendly, making it easier to train staff," said Christina Landeros, Departmental Systems Analyst. Once Harvest LIS was installed, San Mateo experienced increased efficiency immediately, mostly due to the bar code label features.

San Mateo's Public Health Laboratory offers testing in the specialty areas of bacteriology, mycobacteriology, mycology, parasitology, serology, virology, chemistry (blood lead testing), and parasitology. Approximately

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San Mateo County's Public Health Laboratory team: Sangeeta Singh, Lab Assistant; Yvette Dwyer, Microbiologist; Dr. Bruce Fujikawa, Lab Director; Robert Tran, Asst. Lab Director; Darren Wostenberg, Lab Assistant; Craig Blackmore, Asst. Lab Director; Ana Salinas, Lab Assistant; Sangita Kothari, Microbiologist; Karen Nakatani, Office Assistant; Gloria Grygiel, Microbiologist; Manjulla Charan, Microbiologist. (Not pictured: Ghazi Eshani, Microbiologist.)

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San Mateo

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65% of their testing volume consists of clinical tests, primarily infectious disease testing, while the remaining 35% of tests are environmental. On the clinical testing menu, San Mateo offers a complex array of testing including Bordetella, C. difficile, Herpes Simplex Virus, Influenza, Norovirus, and even MRSA (Methicillin Resistant Staphylococcus Aureus) testing, all using RT-PCR (Real-Time Polymerase Chain Reaction) methodology.

Diagnostic real-time PCR is applied to rapidly detect nucleic acids that are diagnostic of infectious diseases or cancer and genetic abnormalities. Real-time PCR is also often used by microbiologists working in the fields of food safety, food spoilage and fermentation, microbial risk assessment of water quality (drinking and recreational waters), and in public health protection. "Much of our precise testing menu demands the expertise and judgment of a trained microbiologist," explained Dr. Fujikawa. "Most of our results do not simply print from a chemistry analyzer; they involve intervention from the staff to evaluate results from analyzers."

Their multi-faceted, complex laboratory reaps the benefits of Harvest LIS' configurability. Another LIS feature San Mateo takes advantage of is the robust data mining browsers and the ability to create and tailor reports. "Our favorite LIS feature is the versatility of Harvest's ad hoc reporting," said Dr. Fujikawa. "The report writer is the best thing going," added Landeros. "Browsers and reports are frequently used, and we receive numerous requests for reports from the Health System. With Harvest, I can automatically generate daily, weekly, and monthly reports, which really comes in handy." Both Dr. Fujikawa

and Landeros have gained valuable knowledge on these features from attending the training classes offered at Orchard's Carmel office.

For environmental testing, San Mateo offers membrane filtration for detection of coliforms in drinking water, bacterial testing for water, as well as limited chemical water testing. In the parasitology area of testing, they perform identification of ticks and other medically significant arthropods. If they identify a tick as belonging to the genus Ixodes, it requires further study, as some ticks in this genus may transmit the pathogenic bacterium *Borrelia burgdorferi*, which is responsible for causing Lyme disease.

San Mateo's most interesting and distinct test that varies from the standard clinical laboratory menu is in the area of Virology. The laboratory has a walk-in service for rabies testing, where customers can complete an Animal Bite Report Form and drop off a specimen for testing. This may seem standard; however, the sample type is "animal head or brain material." When your sample type ranges from water or food to animal head, brain material, or ticks, you need an LIS with maximum customization, and Harvest LIS' adaptability provides San Mateo with that degree of flexibility.

For a laboratory with such an interesting testing array, it is no surprise that they put together a stimulating competition for 2012 National Medical Professionals Lab Week, including a t-shirt competition with prizes for several categories, which was enjoyed by all. San Mateo Public Health Laboratory not only focuses their efforts on producing quality lab results—they have fun doing so. 🍎



Where in the World is Orchy?



Orchard's unofficial mascot, Orchy, joins Orchard employees on many of their travels. If you can identify where Orchy is visiting, send your answer to news@orchardsoft.com by November 15 to be eligible to win an Orchard prize package. Last newsletter, Aaron Saude of Bigfork Valley Hospital in Bigfork, Minnesota, sent in one of the correct entries that Orchy was sitting on the Rock of Gibraltar. Sign in to the Orchard website to see where in the world Orchy has been lately! 🍎

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View the newsletter online at:
www.orchardsoft.com/news_links/newsletter/newsletterarchive.html

Martha Lail

Systems Engineer



Martha Lail is a Systems Engineer here at Orchard Software. Martha travels all over the country installing Harvest LISs in mainly smaller laboratories. Prior to joining Orchard,

Martha worked for Cape Fear Cancer Specialists as a Medical Technologist, Safety Coordinator, and then Laboratory Manager for seven years. It was at Cape Fear that Martha first became acquainted with Orchard and Harvest LIS, as Cape Fear is one of our clients. It was Martha's firsthand knowledge of the Harvest LIS that made her transition from the laboratory into the field installing systems for Orchard such a great fit. Martha's experience in the lab is invaluable when working with clients because she's been in their shoes.

Before gaining entry into the medical field, Martha obtained a B.S. in Clinical Laboratory Science from Western Carolina University in North Carolina and is currently pursuing a Masters in Public Health Leadership

from UNC Chapel Hill. She is also certified as an M.T. by ASCP.

When asked what she likes to do in her free time, Martha had this to say: "I just love being outside. I enjoy camping, hiking, fishing, swimming, and beaching in my free time. Just recently I was in Belize and went hiking on Mayan ruins, tubing in caves, and snorkeling with sharks and sting rays." And speaking of fishing, Orchard knows what a "great catch" Martha is and certainly appreciates all she does in her role as a Systems Engineer.

Martha is married to her college sweetheart. They have a dog they rescued who, Martha says, is as spoiled and adorable as she can be. 🍎

Articles You Don't Want to Miss

One of Orchard's goals is to stay abreast of ongoing lab-related topics so we can be a valuable resource for our clients because we realize how difficult it may be to find time to stay well-informed and keep up with current articles. To assist you, we offer the LIS-Related Articles section on our website with short article summaries and links so that you can read them at your leisure.

To find these articles on the Orchard website, in the left side menu, click "News, Links, And Articles," then click "LIS-Related Articles."

We have recently posted three thought-provoking articles that may be of interest to your lab:

The Move Towards Accountable Care—How Should Labs Respond to Healthcare Reform? written by Bill Malone from the August 2012 *Clinical Laboratory News*.

This article does a great job of discussing the Affordable Care Act and the newly proposed healthcare model of the Accountable Care Organization (ACO). The author lays out an impressive case for how labs can be more proactive in this new model of healthcare with several real-world examples. We have all heard over the past few years that laboratorians need to get outside of the walls of the laboratory and speak up. This article suggests that that venture may need to extend even further than before.

He explains how laboratories are an integral part to the ACO and that labs can help address the need to more closely monitor high-risk patients and reduce hospital stays.

Crystal Run Healthcare in New York, which is an Orchard client, is

See "Don't Miss Articles" on page 4.

Orchard will be closed on the following holidays, and during these days, Orchard Technical Support Representatives will be on-call 24/7 for emergencies at (800) 571-5835.

Thanksgiving

- Thursday, November 22, 2012
- Friday, November 23, 2012

Christmas

- Monday, December 24, 2012
- Tuesday, December 25, 2012

New Year's Day

- Monday, December 31, 2012
- Tuesday, January 1, 2013

Don't Miss Articles

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one of the ACOs Malone interviewed. Their co-chief transformer officer, Scott Hines, M.D., explains how they are working with best practice standards for specific diseases.

The idea that lab leaders need to be more proactive in order to become involved in ACOs is reiterated in the author's reference to a CAP white paper, "Contributions of Pathologists in Accountable Care Organizations: A Case Study," which summarized findings at three ACO organizations. One motivating example is how Montefiore's laboratory poised themselves to be a part of their organization's successful participation in the ACO process. The CAP study suggests that laboratories should document the value they bring to the organization.

The article also discusses other changes, such as a potential test volume shift from in-hospital to outpatient care. The ACO portends a shift to focus on primary care, and we can all agree with the article that labs can contribute by providing an early, accurate diagnosis, thus helping to eliminate unnecessary and costly care.

Tweaking the LIS—Changes in technology offer new information system options for clinical labs

written by Richard R. Rogoski from

the August 2012 *Medical Laboratory Observer*.

Anyone in the market for an LIS or looking to replace or expand their existing LIS will find it helpful to read this article, which discusses Meaningful Use and the importance of structured data, the role of the EMR as the central depository of data, the capture of Point-of-Care testing results, differences in EMR capabilities, needs for system integration, the establishment of HIEs (Health Information Exchanges), and the need for connectivity and interoperability among systems.

Advances in pathology, molecular, and genetic testing, combined with the increasing trend of multiple labs combining into one facility, have brought to the forefront a need for an LIS with a single database that handles all modalities and integrates test results into the EMR. Topics the article addresses are: best-of-breed LISs vs. single vendor solutions, traits to look for when researching an LIS, such as helping to improve workflow, improving efficiency, and being customizable, as well as the growing presence of mobile devices and how their usage may expand in the future.

Along with the turmoil of change in healthcare comes challenges and

opportunities for labs. Some laboratories will need to change their LIS, while some will stay with their current LIS and look for ways to add functionality. This article does a good job of bringing in viewpoints from LIS vendors as well as clients using various LISs, and it should be helpful to anyone trying to make decisions regarding their LIS.

The Lab's Role in Reform Success written by Khosrow Shotorbani from the August 2012 *Advance for Administrators of the Laboratory*.

"The Lab's Role in Reform Success" provides an intelligent discussion of the problems on the healthcare forefront and a lively view of the concerns we face as the healthcare payment model shifts from fee-for-service to a focus on quality medical outcomes—a focus on the whole picture rather than episodic treatments. Shotorbani states that teamwork, coordination, and integration will be vital to that shift. He calls data "the new currency" and names the lab managers as holding the keys to a goldmine of data—data that can be vital in providing strategic insight into topics that are critical to the business of healthcare.

One such example in the article is that laboratorians have the knowledge to assist in the development of much needed clinical pathways and clinical support decisions that can be used to guide physicians to select the best fit laboratory tests. It is clearly pointed out that the lab may only represent 3-5% of a hospital's budget, yet holds 70-80% of the data necessary to affect the hospital's outcomes.

Shotorbani, a Med Tech, implores laboratorians to "rise from the basement" and be utilized as the valuable assets that they are. ●

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Article Link and Information

"The Move Towards Accountable Care" ([Read PDF](#))

This August 2012 article in *Clinical Laboratory News* shares important insights on the transition to the Accountable Care Organization delivery model. Some of the information shared in the article regards how the shared savings model is incorporated in some medical centers already and how they are preparing for the push towards outpatient care.

"Tweaking the LIS—Changes in technology offer new information system options for clinical labs" ([Read Online](#)) ([Read PDF](#))

Laboratory information systems may have appeared to change more slowly than other healthcare IT, but this is changing rapidly with the advent of point-of-care testing, demands for lab analytics, and mobile access. In this MLO article, the author shares insights from some of the industry's most forward thinkers on how the LIS will progress in the future.

"The Lab's Role in Reform Success" ([Read Online](#))

With all the changes happening around our healthcare system, a laboratory professional can be confused on what the lab's role will be in the future. The lab's role could be the reason why Accountable Care Organizations succeed or show the way to how data can drive better healthcare. This article in *Advance* provides detailed information on how lab's fit into the future of United States healthcare.

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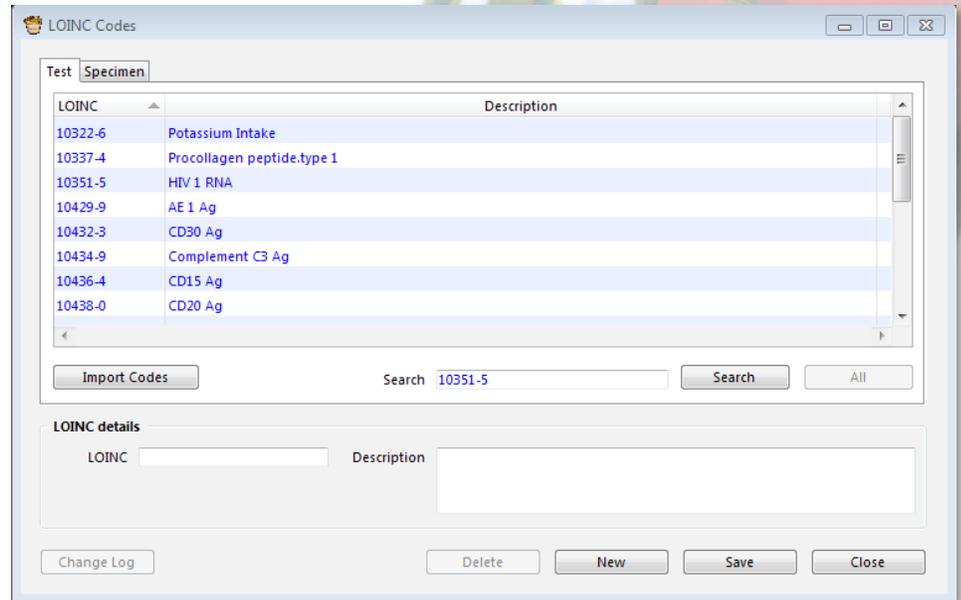
Feature Focus: LOINC and Your LIS

Are you hearing about LOINC® and wondering what it is? You're not alone. Now that Stage 2 for Meaningful Use has been finalized and we all await Stage 3, you will be hearing more about it. We have previously written about LOINC with an extensive four-part series on our blog at www.orchardsoft.com/blog; however, for those who have not had the time to read all four parts, here is a summary of that series. Please visit our blog to view the series in its entirety.

LOINC History

LOINC (Logical Observation Identifiers Names and Codes) has existed for many years. It was initiated in 1994 by the Regenstrief Institute in Indianapolis, Indiana, and the LOINC committee. The LOINC database provides a universal code system for identifying laboratory and clinical test results. These codes are used in electronic messages, such as Health Level Seven (HL7), so that when hospitals, physicians, health maintenance organizations, pharmaceutical manufacturers, researchers, and public health departments receive such messages from multiple sources, they can automatically file the results in the right slots of their medical records, research, and/or public health systems.

On March 21, 2003, the Departments of Health and Human Services, Defense, and Veterans Affairs announced the first set of five uniform standards for the electronic exchange of clinical health information to be adopted across all US federal agencies. LOINC was adopted "to standardize the electronic exchange of clinical laboratory results." The LOINC result code is not intended to transmit all possible information about a test or observation. The LOINC code's purpose is to identify the test result



or clinical observation. Other fields in the electronic message are used to identify the source laboratory and any special details about the sample.

Why We Need LOINC

If you intend to demonstrate meaningful use and receive the incentive payments, you will need to be familiar with LOINC. Standards such as LOINC are included in the ONC final rule for Stage 1 and supported in Stage 2:

"As previously discussed in the Interim Final Rule, we adopted several minimum code set standards. This approach will permit Complete EHRs and EHR Modules to be tested and certified, to, 'at a minimum,' the version of the standard that has been adopted or a more current or subsequently released version. We would note that consistent with this approach the Secretary has proactively identified and deemed acceptable newer versions of the following adopted 'minimum standard' code sets:

(1) LOINC version 2.3, released on February 26, 2010"

The HHS/Office of the National Coordinator for Health Information Technology (ONC) has defined the standards, implementation guides,

and certification criteria to be used for certification.

EHR vendors need to receive LOINC if they want to be certified. For Stage 1, EHR vendors needed to demonstrate they were capable of receiving the code. Stage 2 requires as a core objective that more than 55% of laboratory results be incorporated into a certified EHR, so more and more vendors will be requiring the codes from the LIS. It is the responsibility of the EHR to translate the codes into their human-readable form.

Understanding and Using the LOINC Database

The overall organization of the database is divided into four categories: lab, clinical, attachments, and surveys. The laboratory portion is further divided into the usual categories of chemistry, hematology, serology, microbiology (which includes parasitology and virology), and toxicology. Antibiotic susceptibilities have their own category.

Each LOINC record (fully specified name) corresponds to a single test result by method or panel. While each

See "LOINC" on page 6.

LOINC

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LOINC is unique, the codes were not designed, nor intended, to be unique by testing location. For example, your lab may use the same methodology as your reference lab. If so, both results would use the same LOINC. A formal, distinct, and unique six-part name is given to each term for test or observation identity. The database currently has over 58,000 observation terms that can be accessed and understood universally.

Also, it is helpful to become familiar with the online search tool, RELMA®. To use it, go to www.search.loinc.org, and agree to the disclaimer. Enter your test name into the search field. Knowing the database structure will aid your search. In the example above, searching on “glucose” brings 870 hits, but searching on “glucose” and “fasting” reduced the number to 24. You can sort on any of the columns.

In the “Long Name” column, find the one that best fits your lab’s methodology. To make it easier, we have posted a list of the long common names on our website at www.orchardsoft.com/loinc.html. For more information on LOINC, the LOINC Manual is also available on our website.

Populating Your LIS with LOINC

Now that you know all about LOINC, the million dollar question becomes: “How do I get this information in my LIS?” It would be great if your LIS vendor could do this for you, but they can’t. It’s not that the vendors don’t want to help. The reality is that there are far too many variables in each of your test menu dictionaries.

There are ways to minimize the scope of entering the codes in your LIS. Your instrument vendor knows the methodology better than anyone,

so call them and/or your reagent vendor(s) and ask them what LOINC is appropriate for the method used on your analyzer, as the method on one analyzer in a series may differ from the next generation of that analyzer from the same manufacturer. Remember, too, that your LIS vendor is not a client of your instrument manufacturer, so they will not have access to the instrument or reagent vendor technical support groups, but you may access these groups through your instrument and reagent vendors for further assistance. Fortunately, some vendors are beginning to include the LOINC codes in their package inserts to make things easier.

Once the codes are populated into the correct field of the LIS, it will include them in interface transmissions to the EMR, and you’ll be ready to go! ●

Orchard Pulls a Boeing 757 for Charity

The 2012 FedEx Plane Pull Challenge to benefit Special Olympics Indiana took place on August 25. This giant tug-of-war between Orchard employees and a 164,000-pound FedEx Boeing 757 took place at an old terminal at the Indianapolis International Airport.

Everyone had tons of fun as teams of 20 competed to pull a jumbo jet a distance of 12 feet across the tarmac in the least amount of time. Orchard’s teams finished 4th and 6th in our division, with times of 7.123 seconds and 7.254 seconds.

We also won the 3-on-3 basketball tournament with our team “Hoops I Did It Again.” Congratulations to Kevin Dudley, Ryan Todd, and Mitch Todd for winning this inaugural event. Orchard was the primary sponsor of the 3-on-3 basketball tournament held

on the tarmac in conjunction with the challenge, and there were over 70 Orchard employees and their family members participating in the events and cheering on our teams. Orchy was even present as part of our logo on our custom-designed team t-shirts!

The FedEx Plane Pull Challenge is an annual event that raises funds and awareness for more than 11,000 Special Olympics athletes in Indiana. Together, we helped raise more than \$126,000 for Special Olympics Indiana! We are looking forward to the competition again next year! ●



Tech Tip: General Maintenance Guidance for Orchard Harvest LIS and Orchard Pathology

As with any computer information system, routine maintenance is required to keep a system running smoothly and efficiently. It is imperative that your providers receive their lab results in a timely and efficient manner in order to provide the best quality care for their patients. If routine procedures are not monitored—such as result delivery, patient matches, and HL7 files—they can create a bottleneck of information processing and slow the entire system down, or worse, cause corruption.

At Orchard, we know your time is valuable. We also know that the integrity of your data is just as valuable. Therefore, we want to continually offer helpful suggestions and guidelines to assist you in maintaining the efficiency and integrity of your system. Along with daily backup routines and periodic data archives, there are other procedures that can assist in keeping your system clean and uncluttered.

Below is a checklist of routine maintenance procedures that may help you

Orchard Harvest LIS / Orchard Pathology Maintenance		
Maintenance Task	Path	Frequency
Check for schedule conflicts or scheduled events that are behind schedule.	File Menu > Database Utilities > Summary of Scheduled Events	Weekly
Check that any new insurance records have an insurance type plus host codes.	File Menu > Table Setup > Insurance > Insurance Companies > Insurance Type and Host Codes	Weekly
Check the outbound queue for files with a status of failed.	Instruments Menu > Manage HL7 Files	Daily
Merge or clear patient matches.	Patient Menu > Patient Match Queue	Daily
Make sure all of the Delivery tabs are clearing themselves out.	Laboratory Menu > Deliver Finished Results	Daily
Match results or clear.	Laboratory Menu > Reference Laboratory Match Queue	Daily
Check for overdue/obsolete orders and resolve them.	Laboratory Menu > Release Stored Orders	Weekly
Review the Event Log and determine if further action is needed.	Reports Menu > Event Log	Daily
Check to ensure that the backup is running successfully.	Reports Menu > Event Log	Daily
Review the QC Log and determine if further action is needed.	Reports Menu > Quality Control Log	Weekly or Daily

manage your system. For more information on maintaining your Orchard

system, visit our website at www.orchardsoft.com, or contact Technical Support at (800) 571-5835. 🍎

CAP Fall Meeting Summary by Dr. Mick Glant: The Conversation is About Getting Structured

San Diego was a great place for a Fall CAP meeting this year, and there were a variety of informatics topics, as well as topics related to changes in healthcare. Just as each speaker dutifully announced any conflicts of interest in their relationships, **I am telling you that my bias is that structured discrete data will be the new currency in medicine.**

If pathologists do not take stewardship of this resource, they are missing the biggest opportunity in the evolution of healthcare. Regardless of the politics, reimbursement based on outcomes is the proper incentive for healthcare reform. If you reviewed the workshops and exhibitors, the Accountable Care Organization (ACO) model is the new hot topic. At Or-

chard, we are in front of this by implementing a unique codified diagnostic table to facilitate structured data in our Orchard® Pathology system.

I am committed to structured data and standardized vocabularies because these two components are powerful tools in defining healthcare outcomes.

See "CAP Summary" on page 8.

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Check out our website to get the latest on HITECH, ICD-10, LOINC, ACOs, & Integrated Diagnostics



CAP Summary

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It is clear that various healthcare IT systems will need to aggregate data to determine outcomes. These same datasets will usher in new ways to manage patient care with increased safety and efficiency. All of this demands granular, standardized, and structured data.

We all know that the laboratory is the “king” of medical data and will remain so for many years. If pathologists want to remain important in healthcare, they must become data managers with structured data and standard vocab-

ularies. I think it is safe to say that most have realized that free text information cannot be parsed effectively, and that only well-defined vocabularies and data that are fully contextually defined will provide efficient and unequivocal data streams between systems.

But how do you take control of your data? I think the answer is a sophisticated, codified, standardized diagnostic dictionary designed specifically for pathologists. The rendering of diagnostics is the most critical dataset

that a pathologist provides, so we feel that it is something that pathologists should be able to do easily and with numerous benefits. The creation of a powerful and automated coded diagnosis process has been my focus during my first year at Orchard, and it will be implemented beginning in 2013. Using an auto-navigation system, our coded diagnoses will rapidly isolate the correct terminology and allow automated ICD and SNOMED coding and other benefits. ●

Orchard's 2012 Trade Show Calendar

Date	Name	Location
10/9–10/12/12	Pathology Informatics 2012	Chicago, IL
10/10–10/12/12	G-2 Lab Institute	Arlington, VA
10/10–10/13/12	Symposium for Clinical Labs/COLA	Baltimore, MD
10/28–10/31/12	Pathology Visions 2012	Baltimore, MD
10/31–11/3/12	ASCP Annual Meeting	Boston, MA
12/1–12/5/12	American College of Veterinary Pathologists	Seattle, WA