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Epic's "Beaker" to go live Oct. 11 at UCH, Memorial

Clinical Labs Cooking up Information System Change

By Tyler Smith

The clinical laboratories at University of Colorado Health are closing in on the go-live date for a major computer system change.

At 12:01 a.m. on Oct. 11, University of Colorado Hospital (UCH) and Memorial Hospital are slated to switch from their Cerner-based electronic systems to Beaker, which is part of the Epic applications suite. Poudre Valley Hospital and Medical Center of the Rockies, which are now using a system from Medical Information Technology (MEDITECH), are scheduled to make the change to Beaker November 7.

Adrienne Eichinger, a systems analyst for Poudre Valley Hospital and Medical Center of the Rockies, holds a "Rover" device to be used by AHTs to manage workflows for blood draws.

The transition to Beaker, which began a year ago, is important for two main reasons. First, it integrates the clinical labs' records with the rest of the Epic electronic health record (EHR). It also puts the labs on a single, standardized system for collecting, analyzing, and tracking specimens, which is important for efficiency and for data analysis.

"People in the lab will have a much better view of what is happening with patients' orders," said Connie Williamson, director of information technology for UCH. "There will be a common language."

In a related change, the blood banks at UCH and Memorial will move to a new electronic transfusion management system, Haemonetics SafeTrace Tx, on Oct. 11, with the two northern Colorado hospitals to follow Nov. 7.

Testing, testing. The changeover to Beaker has required hundreds of hours of training and testing to ensure the system works and that staff are ready to use it, Williamson said.

The labs have gone through exhaustive function testing to validate that every order, test, and result flows correctly through the new system. In addition, the labs must also make sure that Beaker integrates with Epic applications in the emergency departments, ambulatory clinics, inpatient units, and other clinical areas, Williamson said.

The work has generated endless streams of data for review. "We're doing end-to-end testing," said Joan Coleman, MT(ASCP), director of UCH's Clinical Laboratory, pointing to a large stack of paper on a recent morning.

The most important reason for the scrutiny is patient safety. But the labs are also subject to rigorous regulatory review from the FDA, the American Association of Blood Banks, and the College of American Pathologists. That demands painstaking documentation of all tests, said Marijo Rugh, vice president of information technology for Poudre Valley Hospital and Medical Center of the Rockies.

Rugh said the number of pieces of information touched by the testing is in the millions, but the payoff will be standardized orders and lab procedures – a boon for patient care and efficiency. In addition, Rugh said, the Beaker framework will be in place when freestanding UCHealth ERs transition to Epic in the coming year, saving many hours of effort.

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Reducing error risk. The switch to the new system automates much of the specimen collection and tracking system. Nurses and ancillary health techs (AHTs) who need to draw blood will identify the patient by scanning his or her wristband. They will then print labels for the collection tubes, which are based on the orders in the EHR, then scan each label, and collect the blood. The EHR will automatically update to reflect the completion of the collection in accordance with the orders, saving nurses and AHTs manual documentation time.

The system will help to ensure that each patient's blood specimen is correctly labeled, said Michelle Feller, RN, MS, director of critical care, cardiology and dialysis for UCH. The current system requires nurses and AHTs to print strips of labels to a common printer, increasing the risk of a provider picking up a label and affixing it to the wrong patient's collection tube, an error that has drawn scrutiny at UCH.

"We're leveraging the technology to provide just-in-time care to the right patient at the right time," Feller said.

In another move to efficiency, the lab staff will be able to reset orders, rather than requesting nurses to enter a new one, if there is a problem with a specimen sent to the lab, such as clotting, Feller said.

Nurses will generally use computers on wheels to handle blood collection, but AHTs will take advantage of yet another new piece of technology. They will carry iPods (nicknamed "Rovers") that display the names of patients scheduled for blood draws, as well as the supplies needed and the tests ordered. When an AHT accepts a job, it will drop off the queue. The AHTs will carry small wireless printers to generate labels after they scan the patient's wristband.

Rather than calling a lead tech after they finish with a patient to find out where to go next, the AHTs will simply click "complete" on their iPods and look for the next available assignment.

"It's a game-changer," said Joe Jazinski, supervisor of ancillary health technicians for UCH. "We will be able to get the labs we need much quicker. That should help to decrease patients' discharge times."

He said the same Rover job-assignment system, developed by Adrienne Eichinger, a systems analyst with Laboratory Information Services at Poudre Valley Hospital and Medical Center of the Rockies, will also help to speed up times for AHTs to handle patients' electrocardiograms. The increased efficiency, Jazinski said, could allow AHTs occasionally to help nurses handle stat blood-draw orders, something that's not possible today.

Trimming bankers' hours. In the Blood Bank, the Haemonetics system will allow staff to electronically match blood types, said Nicole Draper, MD, associate medical director of Transfusion Services for UCH. That frees staff from doing manual cross-matches of red blood cell units on the majority of patients, a much more time-consuming process. For new patients, the Blood Bank will require a second blood draw in a pink-topped tube provided by the blood bank that is shorter than the standard size. It's a system piloted in the Women's Care Center and Birth Center at UCH to guard against a potentially deadly transfusion error, Draper said.

The Rover hand-held device shows test draws for each patient.

"Without a second specimen, we can't give out type-specific blood because of safeguards built into the new system to protect patients," said Dianna Pruden, MT(ASCP), manager of the Blood Bank for UCH. Instead, those patients will get emergency-release blood, she said.

Pruden said the new electronic system will also greatly reduce the volume of paper records for the blood banks. For example, any modification of blood products, such as irradiation, requires a manual relabeling change to the product code and expiration date. The new system will automatically generate a new label, eliminating paper logs, Pruden said.

With the Oct. 11 go live, a command center to monitor the transition at both sites will be set up and will continue for two weeks. In addition, the opening hours of the changeover will require both lab and Epic downtimes. Still, the lab will perform

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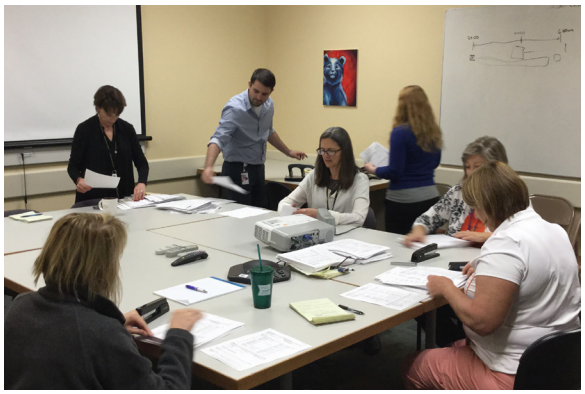
critical tests needed for patients in emergency situations. These tests include blood gases, chemistry panels, coagulation, urinalysis, transfusion services, and others, Coleman said. But the clinical labs are counting on providers to take care of routine blood draws and transfusions before the downtime or wait until later on Sunday when the system is back, up, she added.



A planning and testing session for Beaker brought together Clinical Lab staff at University of Colorado Hospital.

Rugh said the changeover illustrates the complexity of building a system that is integrated both electronically and operationally.

"It has required huge teamwork and a great amount of leadership from each of the labs," she said.