



Clinical
Case Study

Changing Lab “Culture” with the CLINITEK AUWi System

How One Director Streamlined Her Lab’s Urine Culture Practices

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“My micro supervisor confirmed that 70% of the urine cultures we were performing were negative.”

Emmie Brown
Lab Supervisor, Floyd Memorial Hospital

Floyd Memorial Hospital and Health Services (FMHHS) in New Albany, Indiana is home to more than 600 physicians and 2,000 associates who cover a wide range of treatment areas. The laboratory at Floyd Memorial processes in-house specimens as well as those from neighboring physicians’ offices and area labs, resulting in a daily caseload of approximately 400 hematology/coagulation specimens and 60 urinalysis (UA) specimens. As the Supervisor for Hematology, Coagulation, and Urine Testing at FMHHS, Emmie Brown was looking for ways to increase the efficiency of her busy lab.

“I noticed that many of our physicians had gotten into the habit of routinely ordering urine cultures when they ordered urine chemistries—a practice

that I suspected was unnecessary. When my micro supervisor gave me the actual figures and confirmed that 70% of the urine cultures we were performing were negative, something had to change. So I made the call to Siemens.”

The 14-year veteran had been considering acquisition of the CLINITEK® AUWi System to further automate her UA chemistry lab, but she also knew that other labs had successfully tested and validated the CLINITEK AUWi analyzer for urine culture screening. Enlisting the support of her pathologist, Brown made the case for purchasing the analyzer to hospital administrators. Upon approval, Siemens installed the unit to help Brown jump-start a “shift in lab culture.”

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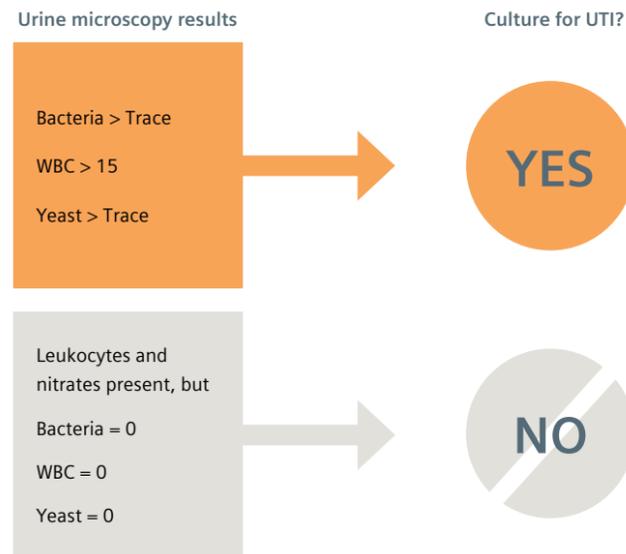
Answers for life.

Floyd Memorial Re-writes Their Rules for Urine Cultures

Siemens specialists installed the CLINITEK AUWi System in the Floyd Memorial UA laboratory and trained technicians in its operation. Within a few short weeks, the new system had significantly streamlined UA protocols at FMHHS (see below). Brown and her team then began the process of calibrating the CLINITEK AUWi to screen for urinary tract infections (UTIs).

They first referenced scientific studies and information from other labs regarding threshold ranges for bacteria, white blood cells (WBCs), and yeast—clear markers for UTI. Using these guidelines, the Floyd Memorial lab re-wrote the rules that would trigger urine culture orders. The next step was to prepare and conduct an internal study to validate these new rules.

New Parameters for Urine Culture at FMHHS



Freeing Techs from Specimen Chaperoning

Prior to installing the CLINITEK AUWi System, Floyd Memorial lab technicians endured frequent, time-consuming interactions with each urine specimen.

After installation, techs only had one duty: place the urine specimen into the analyzer. The instrument would then carry the specimen through chemistry and microscopy automatically before sending a final report to the LIS.

Staff Response to the CLINITEK AUWi System was Immediate and Universally Positive:

- *"This is a true walkaway instrument that lets me attend to other more pressing lab duties."*
- *"Instead of following the specimen from spot to spot around the laboratory, I can drop it into the machine and concentrate on other tasks that require greater focus."*
- *"This was one of my most stressful duties...Now it feels more like a vacation day."*

Brown was also impressed:

"CLINITEK AUWi automation has opened up options for me to reallocate my staff. Instead of being tied to a machine all day, they can be reassigned to some of the more complex tasks that require greater concentration."

UA Protocol Before CLINITEK AUWi

- 1 Dip reagent strip into urine sample
- 2 Place strip into chemistry analyzer
- 3 Remove strip and read result
- If microscopy is indicated:
- 4 Spin urine sample down in centrifuge
- 5 Perform manual microscopic review
- 6 Manually record result into LIS

UA Protocol After CLINITEK AUWi

- 1 Place specimen into analyzer

Estimated tech time saved per specimen:
15 minutes

CLINITEK AUWi Delivers 99% Predictability in Culture Screening

Brown's internal study evaluated 70 randomly selected samples that came into the laboratory with orders for both UA and culture. The team performed UA on every sample and recorded whether the CLINITEK AUWi indicated the need for a culture or not. All specimens were then sent on for culture. The results were virtually unanimous and absolutely conclusive:

The CLINITEK AUWi System was 99% accurate in predicting whether or not UA specimens contained pathogen levels that required a culture.

- 49 of 49 specimens that CLINITEK AUWi reported as negative for pathogens came back negative from culture
- 20 of 21 specimens that CLINITEK AUWi reported as positive came back positive from culture

"My technicians are able to do more today to ensure that patients are getting the appropriate care they need."

But even more significant to Brown than the reduction in unnecessary urine cultures was the drop in "chemistry-plus-culture" orders from physicians at Floyd Memorial.

"Previously, we were averaging approximately 15 culture orders a day for every 60 chemistries, Brown said. "That's about 300 combined orders per month. Once physicians became comfortable with this screening methodology, however, and saw the accuracy of the analyzer—everything changed significantly."

Today at Floyd Memorial, the decision to culture is made exclusively by the lab techs, based on the UA results provided by the CLINITEK AUWi System. Brown reports that the number of physician-ordered cultures each month has dropped from a high of 300 in April 2012 to zero within six months.

System Accuracy Uncovers False Positives as Well as Negative Samples

One might expect that FMHHS would be performing fewer cultures because it had eliminated the unnecessary tests. However, Brown reported that culture numbers are about the same as before CLINITEK AUWi installation (about 650 per month) due to two key factors:

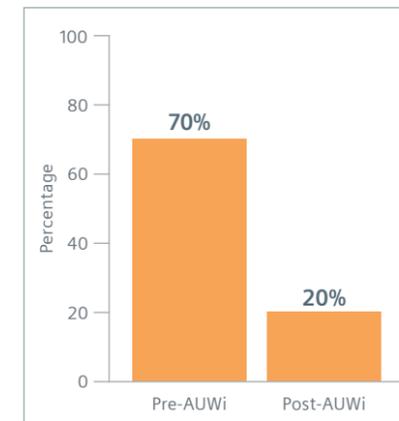
- An increase in the number of specimens being processed by the lab since CLINITEK AUWi installation
- An increase in the number of positive UA specimens being uncovered by the CLINITEK AUWi

According to Brown, "One of the reasons our culture volume has remained steady is that our CLINITEK AUWi analyzer is not only eliminating false negatives, it is also uncovering a significant number of positive samples that our previous system failed to catch. So we're actually achieving greater accuracy on both ends of the spectrum."

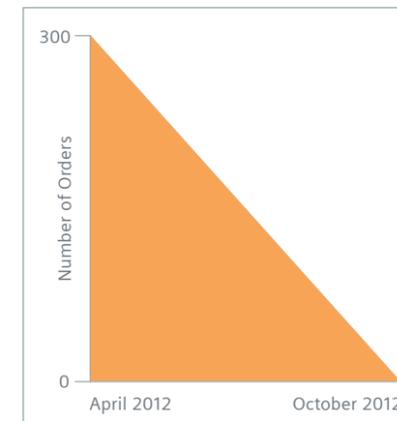
A Cultural Shift at Floyd Memorial

Prior to implementation of urine screening with the CLINITEK AUWi System, approximately 70% of the cultures performed each day at FMHHS were negative. After implementation, only 20% of the cultures came back negative.

Reduction in Percentage of Negative Urine Cultures per Day



Reduction in the Number of Combined Chemistry & Culture Orders by FMHHS HCPs Per Month



A Worthwhile Investment

All things considered, Brown says she is most excited about the actual "cultural" changes that CLINITEK AUWi automation and screening have brought to her lab.

"What we've found with our implementation of the CLINITEK AUWi System," Brown says, "is that we're able to let our staff work on the specimens that truly need their attention and focus. My technicians are able to do more today to ensure that patients are getting the appropriate care they need. And that is very fulfilling for us all."