

## **Point-of-Care Screening Prior to Contrast-Agent Imaging: A Boost to Patient Care and Revenue**

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Heightened awareness of nephrogenic systemic fibrosis (NSF) and contrast-induced nephropathy (CIN) have prompted imaging and radiation professionals to seek ways to minimize the risk of these damaging conditions in patients. A critical safeguard is reviewing current laboratory results for BUN and creatinine before the utilization of any contrast agents to balance potential risks with the importance of running a MRI or CT scan with contrast agents. Unfortunately, it is not uncommon for patients to be turned away or rescheduled due to insufficient lab results.

With no on-site laboratory capabilities and insufficient resources to manage the burdensome task of setting up a moderately complex laboratory, our imaging center (Glendale MRI; Glendale, CA), like many others, experienced a decrease in the number of MRI and CT scans over the last couple of years. This led to delayed treatment for patients and reduced our revenue. Fortunately, we discovered a simple and affordable solution that we could quickly implement: a point-of-care chemistry analyzer that enabled us to run CLIA waived BUN and creatinine tests.

### **NSF and CIN's Impact on Our Imaging Center**

When the FDA issued an advisory in late 2006 about Gadolinium-based contrast agents, we developed a strict protocol for patients in order to maintain the highest level of safety for our patients. We mandated current blood tests for BUN and creatinine for patients undergoing a MRI or MRA with contrast agents who were diabetic, over the age of 60, and had lupus or kidney problems. We later extended that protocol to patients undergoing a CT, as iodine-based contrast agents used for these scans placed patients at risk for CIN. This effectively eliminated our ability to run scans on same-day emergent patients or patients who did not bring lab results because we did not have the capability to run immediate scans. As a result, up to three scans per week were being lost, causing deep concern in our center about the delay in treating patients, potentially for life threatening conditions.

Our imaging center always touted quickness and efficiency in our marketing and this interruption in the treatment process negatively impacted our business. Referring physicians became frustrated at our inability to conduct same day imaging tests (primarily MRIs) and their compliance with our requirements for providing lab results for BUN and creatinine were not improving even with our continued educational efforts. We began to experience a drop in our referral rates and a perception grew that it was difficult to work with our center. Bottom line: physicians started looking elsewhere for scans.

**Solution: Bringing CLIA Waived Lab Testing Abilities On-Site**

To remedy this issue, we implemented a point-of-care (POC) chemistry analyzer called the Piccolo<sup>®</sup> Xpress (manufactured by Abaxis) which offers CLIA-waived creatinine and BUN tests for assessing renal function in patients. The device is easy to use and enables us to run lab accurate diagnostic tests in a matter of minutes without the expense, resources and documentation required for a moderately complex laboratory.

When we embarked on our search for a chemistry analyzer, we had three main criteria: accuracy, turn-around time and ease of use. Ultimately, we found the Piccolo was the best fit for our needs.

In regards to accuracy, we were impressed by the system's disc error rate of 0.2 percent versus others on the market that were as high as 25 percent. Another reason we gravitated toward this particular device was because of the faster turnaround time for results, approximately 12 minutes. We could not afford to frustrate patients with long wait times since our imaging center's competitive advantage has always centered around how quick and efficient we are. Other comparable analyzers we researched required strips or cartridges to be warmed-up for 5-20 minutes before running the actual test, which translated to a delay of at least 30 minutes for access to the results.

Finally, the Piccolo is extremely easy to use, compact and offers automatic calibration, enabling our staff to operate it with minimal training.

## **Return on Investment**

After implementing the use of a point-of-care chemistry analyzer, we were able to retain the scans we had begun to lose, improving patient care and boosting our revenue back to previous levels. Conducting these tests while the patient is on-site allows us to accept the patients we would have had to turn away and reduces the number of rescheduled appointments due to insufficient labs. As a result, we have been able to stabilize revenue and reduce the downtime associated with these issues.

The revenue from the retained scans has enabled us to recover the cost of the system very quickly, within approximately three months. We also leveraged our new capabilities to help repair our reputation. We immediately began marketing our on-site lab capabilities to all of our referring physicians and spread the news through word-of-mouth promotion. The normalization of our referral rates was a sure sign that things were getting back on track and that we had found an effective solution to the problems we were experiencing due to the heightened risk of kidney damage. We take pride in the fact that we no longer have to turn patients away or delay imaging tests and are able to return them to their referring physicians faster to begin necessary treatment.

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Glendale MRI is based in Glendale, California and sees approximately 40 patients per day. The center employs 14 full-time staff members and offers MRI, PET/CT, CT, Bone Densitometry and Ultrasound.