

2010 Showcase in Excellence Award Recipient

**Laboratory Sciences of Arizona/Banner Del Webb  
Medical Center Laboratory**  
*“Emergency Department Urinalysis Testing Turnaround Time”*

---



**Company Information:**

*Highest Ranking Official:*

Dave A. Dexter  
President and Chief Executive  
Officer

*Contact Person:*

Eadie Baie  
Administrative Director,  
Clinical Laboratory, Banner Del  
Webb Medical Center  
623-975-8810  
Eadie.baie@bannerhealth.com

*Type of work:*

Laboratory Sciences of Arizona (LSA) is the largest fully integrated laboratory network in the nation. The diverse network includes the ten Arizona hospital laboratories of Banner Health and the medical laboratories of Sonora Quest Laboratories (SQL).

*Workforce:* 2500

**Testimonial of Value** of the Arizona Performance Excellence Award Program

*“Laboratory Science of Arizona and Sonora Quest Laboratories are committed to continuously improving its laboratory processes. Our goal is to “Be the trusted leader in diagnostic testing and information services”. The Arizona Quality Alliance and the Performance Excellence Program continues to provide our organization with an opportunity to validate our processes and be recognized once more as a Showcase in Excellence Award recipient.”*

David A. Dexter, President and Chief Executive Officer,  
Laboratory Sciences of Arizona

**Highlights of Organizational Process:**

Banner Del Webb Medical Center a 325 bed, full-service, non-profit, acute care hospital located in Sun City West, AZ provides orthopedic surgery, stroke care, cardiac services, maternity services, and women’s health services to residents of the northwest valley.

With over 5,000 patients seen monthly in the Banner Del Webb Emergency Department, improvements to timely patient laboratory results help improve patient care and treatment and contribute to improved patient satisfaction scores. Decreasing Emergency Department wait times and providing timely, quality care to our patients allows Banner Del Webb to provide quality emergency healthcare and maintain a loyal customer base.

Laboratory Science of Arizona provides laboratory services for all ten Banner Health hospitals in Arizona and monitors turnaround times for critical laboratory tests. The goal for Emergency Department testing is 90% completion within 30 minutes of the receipt of the specimen in the laboratory. In early 2009, STAT Urinalysis test results only met goal 77% of the time.

## Process Improvement Methodology:

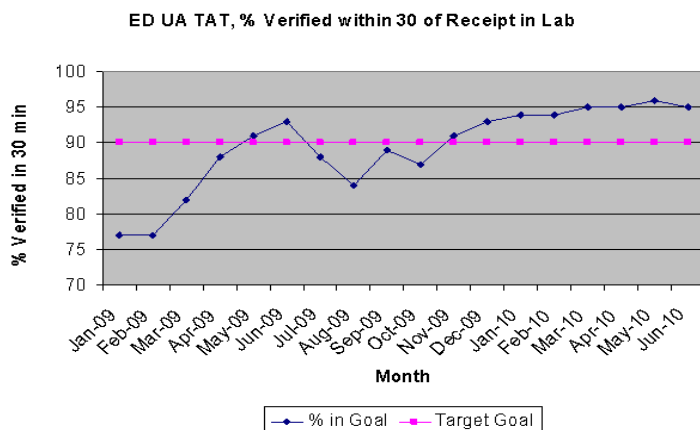
The approach taken to improve the process was a LEAN Six Sigma Green Belt project. An interdepartmental team of Clinical Laboratory, Emergency Department, Nursing, and Information Technology staff members used LEAN and Six Sigma process improvement principles to drive decisions and process changes in order to meet customer requirements. The goal of the project was to achieve the 90% completion rate within 30 minutes by reducing current Defects per Million Opportunities (DPMO) by 50%, standardizing workflow, eliminating/reducing inventory, establishing a 5S visual workplace, eliminating loop-backs and improving productivity.

## Processes:

The mapping of the process indicated that timely completion was dependent upon delivery of a satisfactory specimen to the Laboratory. 18% of all urines leaked in transit and required a recollection of the specimen. This was a major dissatisfier to the patient and the treating physician as this meant delays in treatment and discharge. A major initial improvement was the implementation of new urine collection and transport products used by Nursing. This major product and process change eliminated recollected specimens 100% of the time as specimen integrity was improved, loop-backs and delays were decreased, expenses were decreased when specimens leaked in transit and needed to be recollected and resubmitted, and additional specimen handling and re-labeling steps were eliminated in the laboratory once the recollected specimen arrived.

Utilizing the Six Sigma process, quick hits were implemented in May 2009. Non-value confirmatory testing was eliminated. The 5S rule to sort, simplify, shine, standardize and sustain was applied to the Urinalysis workstation and a 40% reduction in non-value added supplies was realized. Additionally, a standardized workflow from specimen receipt to result was initiated for all laboratory employees. Eleven additional improvements were identified and implemented after the solution prioritization matrix indicated they were appropriate solutions. Six of the eleven innovative improvements resulted in cost savings. These cost savings were realized system-wide as this process improvement was implemented in all Banner/LSA hospital laboratories.

A control plan was initiated in July 2009 with a monthly review of receipt to result cycle time data by process owners. A challenge to the change process occurred beginning in July 2009 as a new Laboratory Information system was scheduled for go-live August 1<sup>st</sup> and the focus of the laboratory staff shifted to a mastery of the new computer system and changes in usage governed by policy and procedure changes that also went into effect at the same time. As the learning curve for those changes were being conquered, the ED Urinalysis cycle time dipped below 90% for the months of July, August, September and October. The team reconvened in November and additional steps were taken to address the dip in compliance. These final, hard-wired improvements pushed us over goal in November 2009 and we have remained there through all of 2010.



- The Clinical Laboratory reduced cycle time by 21%.
- DPMO was reduced by 75%.
- Patient Satisfaction scores in the Emergency Department rose 5 % during this time period.
- Treat to Release Times decreased 46 minutes from 2009 to 2010.