

A nighttime photograph of a city skyline across a river. The buildings are illuminated with warm lights, and the sky is a deep blue with some clouds. The river in the foreground reflects the lights from the buildings.

CASE STUDY: SAINT FRANCIS HOSPITAL

REALIZING NETWORK EFFICIENCY THROUGH ABBOTT'S TOTAL SOLUTION

OVERVIEW

- This 1,112-bed hospital is a tertiary care center for eastern Oklahoma and anchors the Saint Francis Health System comprised of multiple hospitals plus 95 Warren Clinic locations
- Serves as the only dedicated children's hospital and level IV Neonatal Intensive Care Unit in the region
- The laboratory supports in house testing for the network and has a growing outreach program, processing 15.7 million tests annually

LABORATORY GOALS

- Support patient result commutability across the network's locations
- Maintain high quality laboratory test performance to deliver exemplary patient care
- Increase laboratory operational efficiency to support hospital and network growth strategy

SUCCESS FACTORS

- Adoption of instrumentation with standardized assay reference ranges
- Utilization of high quality Six Sigma assays that reduce errors and improve patient care
- Introduction of an end-to-end solution that improves key laboratory performance metrics including TAT and resource utilization
- Implementation of a compact solution that increases throughput and tests per square foot

ENSURING RESULT COMMUTABILITY ACROSS THE NETWORK

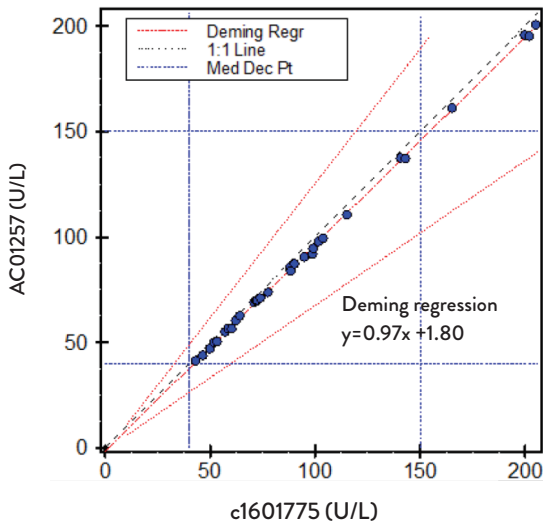
Saint Francis Hospital operates as the primary hub of a multi-hospital network with 95 clinics and urgent care centers across eastern Oklahoma. Maintaining a 17-year plus partnership with Abbott, the organization has been an early adopter of innovative technology to further their operation's productivity. Transitioning their existing Abbott's solution from ARCHITECT to include the Alinity ci-series and ACCELERATOR a3600 automation allowed them to expand operational efficiencies while maintaining result commutability. This consistency enables the healthcare system to serve patients receiving care across the network.

- **32 CC assays evaluated:**

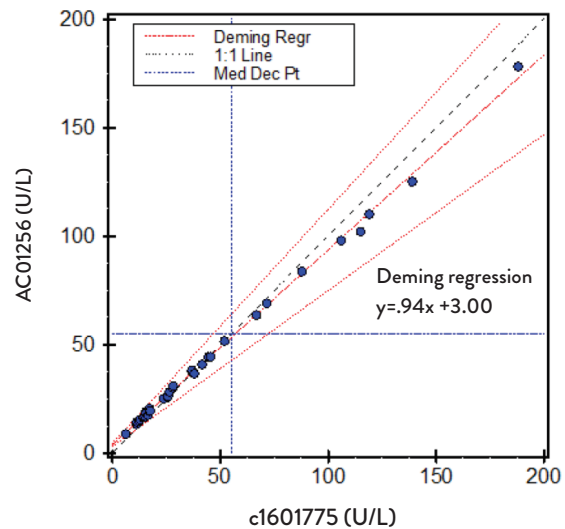
- Average Correlation Coefficient of 0.994
- Average Deming Slope of 0.988

Completing a commutability assessment, the organization demonstrated excellent commutability of quality control and patient results between the Alinity ci-series and ARCHITECT systems. For the 32 clinical chemistry assays evaluated, the average correlation coefficient was 0.994. Similarly, the 13 immunoassay analytes evaluated had an average correlation coefficient of 0.995. Further, Deming regression analysis was completed, demonstrating an average slope of 0.988 for the clinical chemistry assays and an average slope of 1.02 for the immunoassay analytes. The excellent result commutability between Alinity and ARCHITECT allowed the organization to standardize reference ranges across their entire system, simplifying patient results trending.

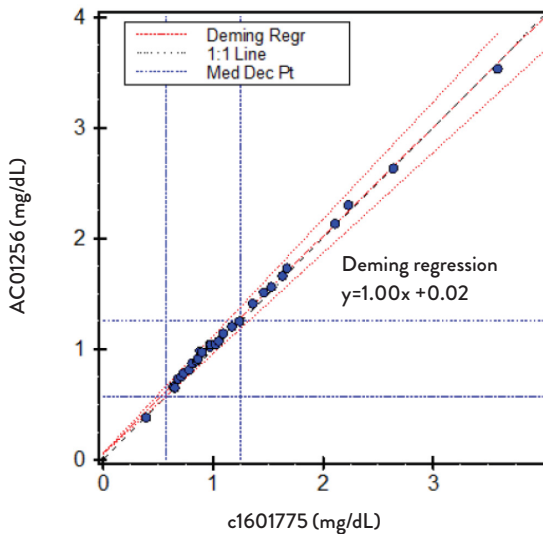
Alkaline Phosphatase



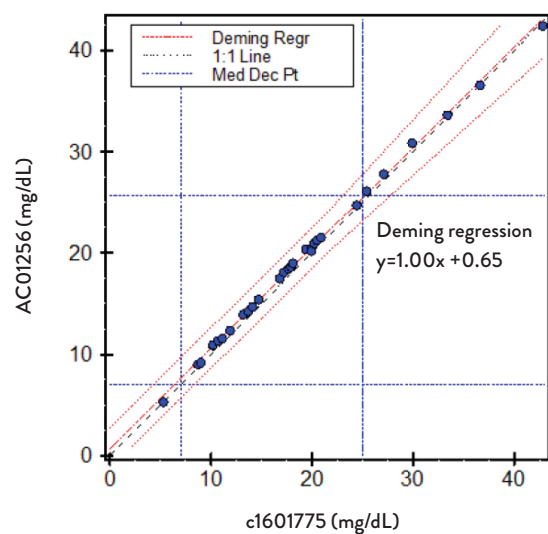
ALT



Creatinine



Urea



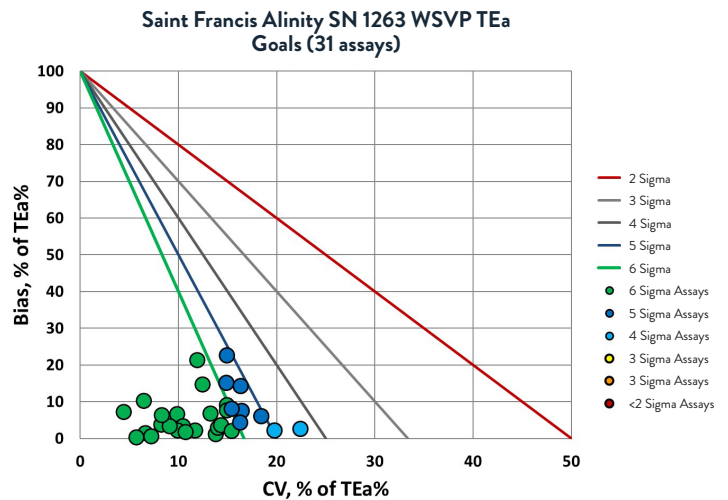
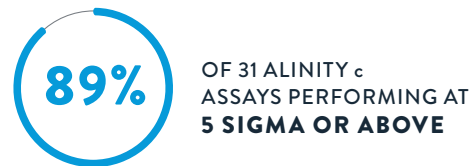
“Since there is strong commutability between the ARCHITECT and Alinity system assay performance, our laboratory has been able to invest in solutions that increase operational efficiencies without the need for reference range harmonization.”

— Jay Hupp, Saint Francis Laboratory Technical Services Manager

HIGH PERFORMING SOLUTION DESIGNED TO DELIVER QUALITY CARE

Laboratories are required to have statistical quality control practices so that only acceptable results are released for medical determinations. The Six Sigma methodology is used by many laboratories to benchmark testing performance of their core lab analyzers. As part of their commitment to quality, the laboratory evaluated Six Sigma performance of 31 clinical chemistry assays across four Alinity c systems. 89% of their assays achieved 5 or 6 Sigma performance, considered excellent to world class performance. The organization became the highest volume laboratory in the US to achieve the Sigma Verification of Performance from Westgard QC. High quality assay performance reduces false QC rejections and time spent on unnecessary troubleshooting allowing Saint Francis to have high confidence in result quality, reduce QC consumption, and frees up staff for add-value activities.

STAT TAT is another key performance metric for a laboratory to ensure delivery of results to time sensitive patient scenarios. The organization evaluated turnaround time with Abbott's total solution for 3 key STAT panels and analytes, determining that at least 96% of results met their STAT TAT goal of results released in less than 45 min.



Data verified by Westgard QC

SAINT FRANCIS STAT TAT

Panel / Assay	Mean TAT (min)	Percent Complete in 45 minutes
Basic Metabolic Panel Run on Alinity and ARCHITECT	21	98%
Comprehensive Metabolic Panel Run on Alinity and ARCHITECT	24	97%
ARCHITECT STAT Troponin-I	28	96%

RESOURCE OPTIMIZATION

As a result of implementing the Alinity ci-series, the laboratory reduced staff time spent on manual maintenance by 76%, saving 45 hours annually which will continue to improve during the further transition to Alinity. Additionally, analyzer time necessary to complete maintenance improved by 15% increasing system availability for test processing, supporting the network's long-term growth plan. By reducing non-value manual workload, the staff can be redeployed to other critical activities.



EXPECTED INCREASE IN DEMAND FOR MEDICAL TECHNOLOGISTS HEIGHTENS IMPORTANCE OF **EFFICIENT UTILIZATION OF RESOURCES.**



76% REDUCTION IN MANUAL MAINTENANCE TIME



45 HOURS SAVED ANNUALLY ON MANUAL MAINTENANCE



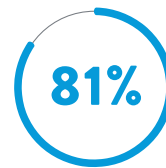
15% INCREASE IN SYSTEM AVAILABILITY

Zanto, Susie, et al. (2018, August 2). *Addressing the Clinical Laboratory Workforce Shortage*. Retrieved December 16, 2020, from <https://www.ascls.org/position-papers/321-laboratory-workforce/440-addressing-the-clinical-laboratory-workforce-shortage>

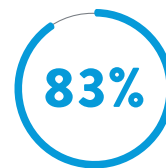
Further reduction of staff manual burden was achieved through Abbott's support of Accelerator a3600 open connectivity. The laboratory connected three third party analyzers for coagulation and allergy testing to their track, eliminating manual interventions needed for samples directed to those instruments. Finally, using Abbott's AlinIQ Analyzer Management System, Saint Francis enabled rules based autoverification for outpatient samples. With their total solution, 81% of core diagnostics immunoassay and clinical chemistry results and 83% of hematology results are autoverified, eliminating manual staff review supporting faster delivery of results to physicians.

SUPPORTING ORGANIZATIONAL GROWTH

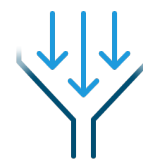
The hospital's testing volumes have increased by 115% over the last decade. Given their current growth trajectory and limited space within the hospital, efficient use of space would be necessary to support increased demand. Through the implementation of the Alinity ci-series, the organization was able to increase testing throughput by 88% while increasing tests per square foot by 29%.



IMMUNOASSAY AND CLINICAL CHEMISTRY **AUTOVERIFICATION RATE**



HEMATOLOGY **AUTOVERIFICATION RATE**



88% INCREASE IN TESTING THROUGHPUT



29% INCREASE IN TESTS PER SQUARE FOOT



“Our long-standing partnership with Abbott has positioned our laboratory and health system to grow, improve physician and patient satisfaction through continuous improvement initiatives.”

— Jaime Mackey, Saint Francis Director of Laboratory Services

CONCLUSION

Saint Francis continues to improve operational productivity through the implementation of the Abbott’s total solution. Realizing operational efficiencies in KPI’s such as results commutability, assay performance, TAT, manual labor and space utilization has allowed Saint Francis to deliver high quality patient care while managing the growth trajectory of the network.



EXCELLENT
RESULTS
COMMUTABILITY



SIGMA
STRONG ASSAY
PERFORMANCE



ACHIEVED
STAT TAT GOAL



REDUCED
MANUAL
ACTIVITIES



IMPROVED
SPACE
UTILIZATION

CORELABORATORY. ABBOTT

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