



# CASE STUDY: NAVICENT HEALTH

ACHIEVING  
SUSTAINABLE  
GROWTH THROUGH  
CONTINUOUS  
IMPROVEMENT



## NAVICENT HEALTH

- Hospital system serving the central Georgia region for 20+ years
- Laboratory performs 4.8 million tests per year and is growing at a CAGR of 4.8%
- Expanding community outreach program represents 25% of the total laboratory test volume
- Serves as the region's Level I Trauma Center and only dedicated pediatric hospital, contributing to over 6% of pathology testing

## HOSPITAL-WIDE GOALS

- Maintain high level of patient satisfaction through compassionate and professional care
- Increase testing capacity within existing laboratory footprint to accommodate continued growth
- Enable laboratory staff to focus on greater value-add activities

## SUCCESS FACTORS

- Implementation of solution with high tests per square foot
- Optimization of total solution that reduces manual steps and interventions
- Adoption of instrumentation with low minimum sample requirements



“The majority of our quantity not sufficient (QNS) errors are from our pediatric patients. Reducing this rate prevents us from having to redraw these vulnerable patients.”

— Dr Emily Ryan,  
Clinical Lab Scientific Leader

## REDUCED QUANTITY NOT SUFFICIENT (QNS) RATES

As a Level I Trauma Center and the region’s only dedicated pediatric hospital, being able to process short samples is critical; reducing the required specimen volume leads to lower rejections due to QNS and improves patient care and satisfaction. This reduces unnecessary costs and dissatisfaction associated with redraws and delayed diagnoses. Transitioning to the Abbott solution allowed Navicent Health to successfully reduce QNS rates and redraws by 29%.



LOWER  
MINIMUM  
SAMPLE  
REQUIREMENT

RESULTED IN

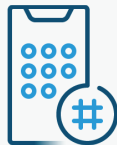
29%  
REDUCTION  
IN QNS  
QUANTITY NOT  
SUFFICIENT



### ELIMINATING THE NEED FOR RETESTS



INSUFFICIENT  
VOLUME



CALL  
NURSE



NURSE  
REORDERS  
TEST



NURSE  
REDRAWS  
PATIENT



REDRAWN  
SAMPLE  
SENT TO LAB

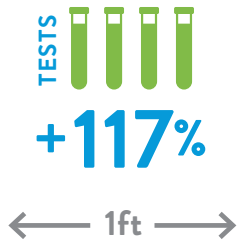
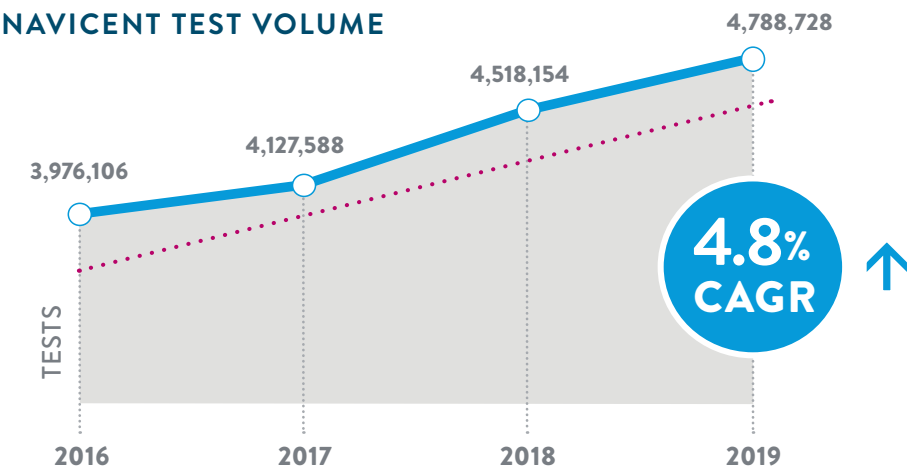


REDRAWN  
SAMPLE  
TESTED

# IMPROVED SPACE UTILIZATION

Between 2016 and 2019, Navicent Health laboratory testing grew by a compound annual growth rate of 4.8%, driven primarily by an expanding outreach program. This growth required the laboratory to increase volume capacity within their existing space, with ability to accommodate subsequent growth. Implementing the compact Alinity ci-series system, Navicent Health has been able to improve tests per square foot by 117% and capacity by 123%.

## NAVICENT TEST VOLUME

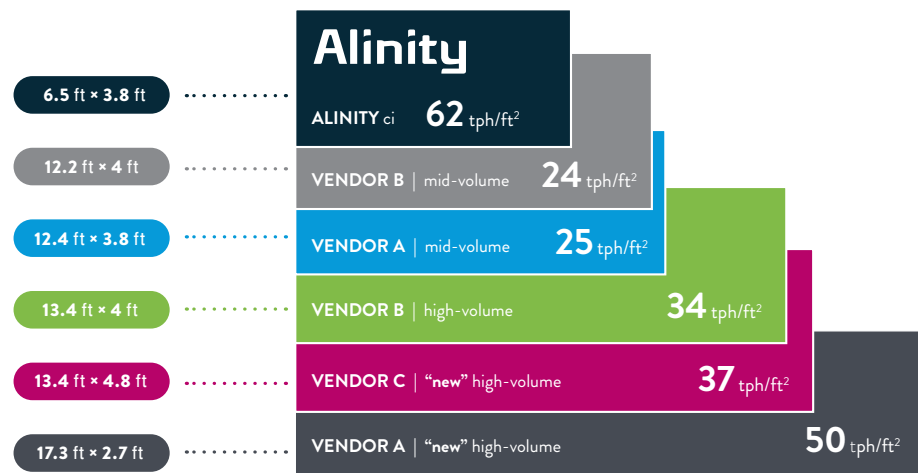


INCREASE  
IN TESTS PER  
SQUARE FOOT

&

## TEST VOLUME PER SQUARE FOOT EXCEEDS THAT OF COMPETITORS

Compared to other systems, the Alinity ci-series system has the highest tests per square foot and a more compact footprint. These attributes enabled Navicent Health to scale their laboratory within the existing footprint to meet increasing demand without having to make dramatic infrastructure changes.



INCREASE IN  
CAPACITY WITHIN  
EXISTING SPACE

- Vendor A "new" high-volume: Roche cobas® 8000 with e801; with e602, tph/ft² is 47
- Vendor C "new" high-volume: Seimens Atellica® Immunoassay/Clinical Chemistry Solution
- Vendor B high-volume: Beckman Coulter® DxC 880i
- Vendor A mid-volume: Roche cobas® 6000
- Vendor B mid-volume: Beckman Coulter® DxC 660i;
- Abbott: Next Generation Integrated System (single immunoassay and single clinical chemistry)

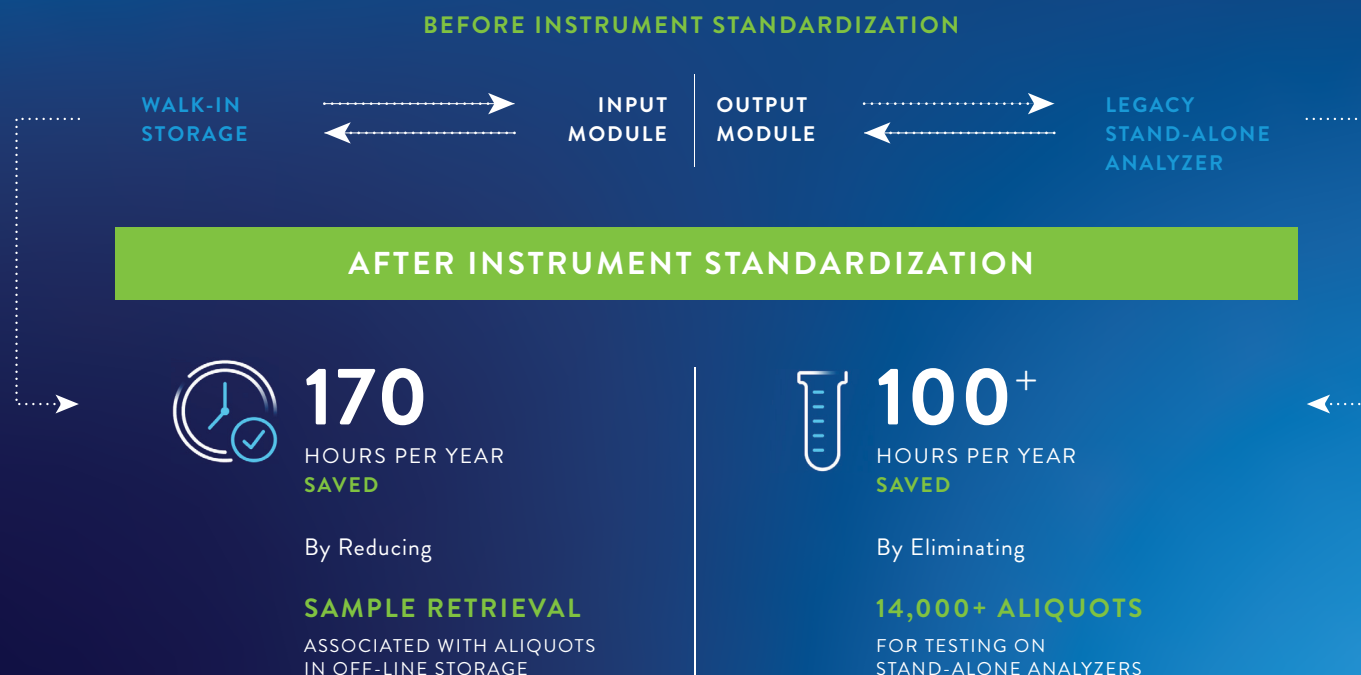
“Our year-over-year testing volume growth means that space utilization and testing capacity are key metrics to ensure our continued success.”

— Dr Emily Ryan, Clinical Lab Scientific Leader



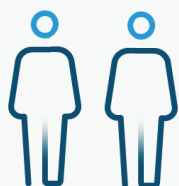
# IMPROVED RESOURCE UTILIZATION

Standardizing instrumentation has allowed the laboratory to process more samples on-line via automation, which has reduced aliquots, sample movement, and retrieval. Improved resource utilization has positioned the laboratory to manage nearly 40% of the total volume with two staff members during the third shift.



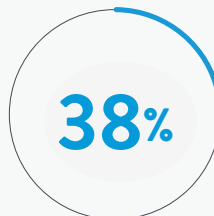
## OVERALL RESOURCE UTILIZATION

### IMPROVEMENTS ENABLED:



**2 THIRD-SHIFT  
TECHNICIANS**

TO PROCESS:



OF  
**1,819,717**  
TOTAL ANNUAL TESTS

# IMPROVED RESOURCE UTILIZATION

To accommodate increasing testing volumes within existing staffing levels, identifying operational efficiencies has been essential for Navicent Health. The laboratory has reduced the manual workload for technicians through middleware, improved technology, and standardization. Using middleware, Navicent Health has established rules allowing results to be immediately released, which saves staff valuable time and ensures physicians receive results sooner.

The adoption of the Alinity ci-series system has also enabled staff to automate historically laborious maintenance and calibration activities. Hands-on maintenance times have been reduced by 90% as previously manual tasks are automated by the system. In addition, the ability to store frequently used calibration materials on-board and have them run automatically as needed has freed up staff time by 58.5 hours per year, representing an 80% reduction in time spent managing daily electrolyte calibrations.

## AUTOMATION OF MAINTENANCE CALIBRATION



**97%**  
OF TEST RESULTS  
AUTO-VERIFIED  
VIA MIDDLEWARE

RESULTING IN



**REDUCED REVIEW TIME  
FOR STAFF & EXPEDITED  
PATIENT CARE**



**26%↑**  
IN SYSTEM UPTIME  
BY REDUCING OVERALL  
MAINTENANCE TIME

&



**90%↓**  
IN HANDS-ON  
MAINTENANCE TIME



Alinity system allows for on-board storage of QC and calibration materials.

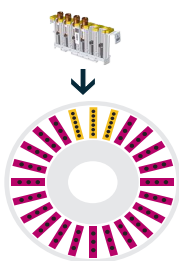
**SAVED  
58.5  
HOURS PER YEAR**

**AN  
80%**

IMPROVEMENT

BY AUTOMATING

**ELECTROLYTE  
CALIBRATIONS**



## CONCLUSION

Leveraging total laboratory automation and the Alinity ci-series has allowed Navicent Health to better serve their patient population, physician community, and outreach customers while increasing laboratory efficiencies:

- Ability to accommodate nearly 5% compound annual growth rate in the same space
- Fewer patient redraws and retests with lower minimum sample requirements
- Improved resource utilization by freeing up almost 400 hours annually



“With the Abbott solution, we have been able to realize several operational efficiencies that have saved our staff precious time. By reducing tasks, we have been able to free staff up to better serve our nurses and physicians, by providing support around result interpretation and ordering processes. In addition, we have also been able to accommodate testing growth with our existing team.”

— Christy Holbrook (MT),  
Chemistry Technical Leader

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