

BREAKING STATUS QUO

Continuing Success at Bethesda North with Total Lab Automation

Bethesda North Hospital is a member of TriHealth, an organization **exemplifying its mission to improve the health status of the people they serve**. TriHealth is a not-for-profit health system providing a range of clinical, education, preventative and social programs across their 8 hospitals and free-standing emergency rooms.

Bethesda North, a leading Cincinnati hospital, was founded in 1896 as a satellite hospital to care for Cincinnati, Ohio's sick and poor. The hospital is licensed for approximately 360 adult and 60 pediatric beds. Bethesda North has received the following accolades:

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- **An 'A' rated hospital for Patient Safety by The Leapfrog Group**
 - **The only designated trauma center in northern Cincinnati**
 - Blue Distinction Center for Cardiac Care designation from Blue Cross Blue Shield
 - The Society of Thoracic Surgeons has given the TriHealth Cardiothoracic Surgery Program at Bethesda North three stars—the highest possible performance—placing TriHealth in the top decile of all programs nationally for clinical outcomes and the top performing cardiac surgery program in the region
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The laboratory has maintained a long-time partnership with Beckman Coulter, dating back to 1998. As the laboratory was deciding their next phase of analyzers, the laboratory's leadership identified four key criteria, listed to the right, that their future partner and solution needed to meet.



1. RUN MORE

Increase Capacity for outreach work leading to better results & TATs

2. WITH LESS

Future-Proof to overcome labor shortages

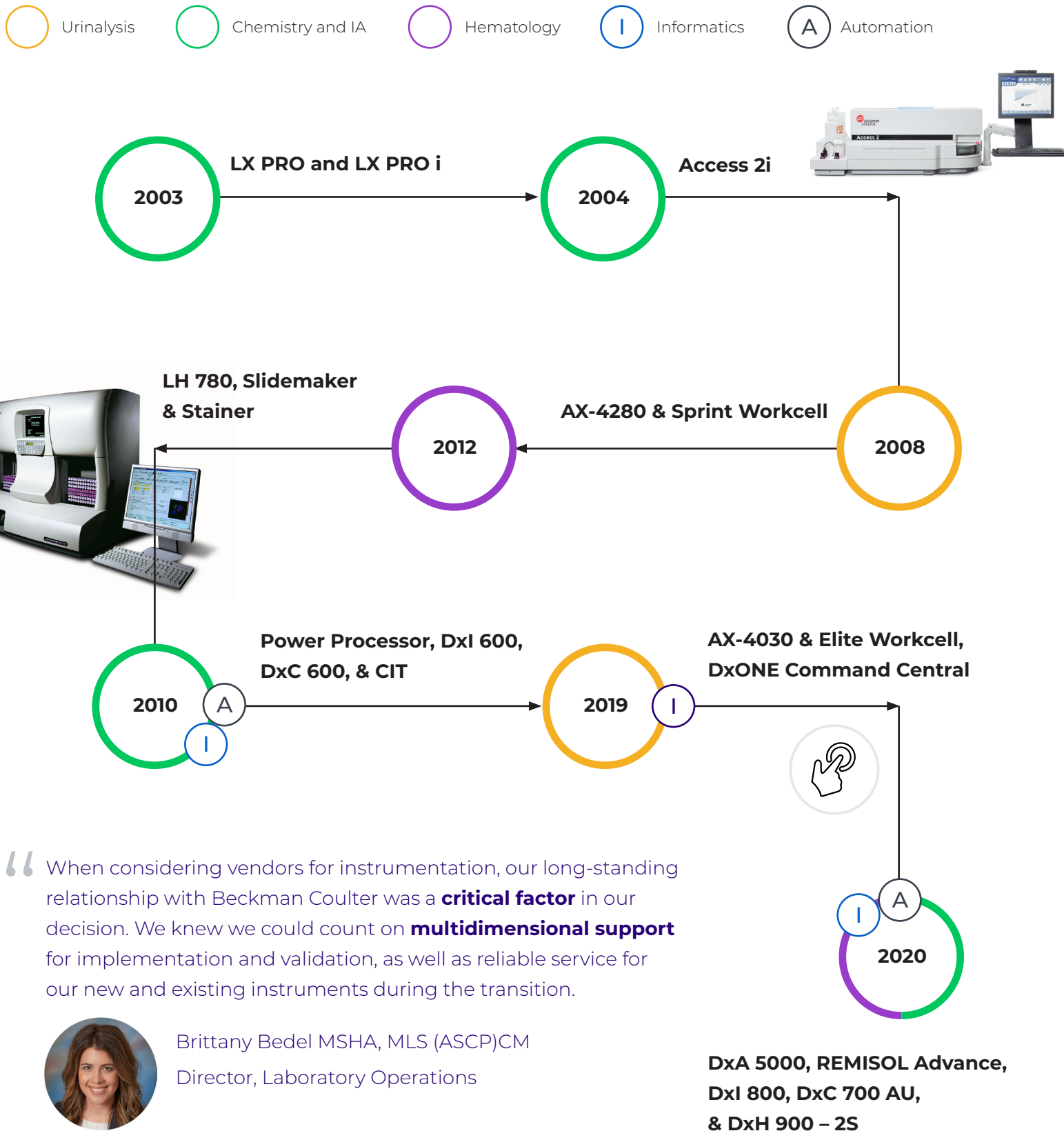
3. AT ALL TIMES

Proven Service and acquire the industry's most reliable hardware

4. BY BEING INNOVATIVE

Industry-Leading automation to meet current and future challenges

A SUMMARY OF BETHESDA NORTH'S LONG-TERM PARTNERSHIP WITH BECKMAN COULTER



“When considering vendors for instrumentation, our long-standing relationship with Beckman Coulter was a **critical factor** in our decision. We knew we could count on **multidimensional support** for implementation and validation, as well as reliable service for our new and existing instruments during the transition.



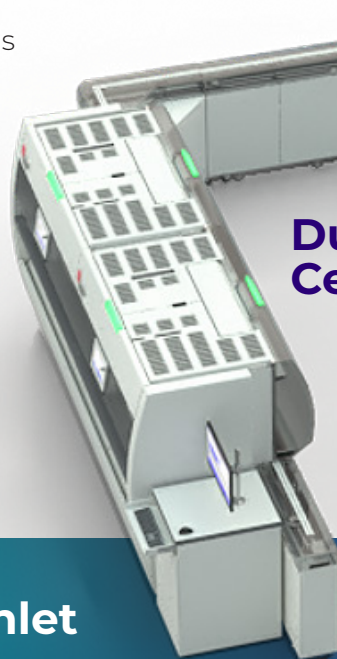
Brittany Bedel MSHA, MLS (ASCP)CM
Director, Laboratory Operations

**DxA 5000, REMISOL Advance,
Dxl 800, DxC 700 AU,
& DxH 900 – 2S**

BETHESDA NORTH'S DxA 5000 AUTOMATION SYSTEM

Their configuration includes:

- Dynamic Inlet (Pre-analytical Sample Check)
- Dual centrifuge module
- Two DxC 700 AU (chemistry) systems
- Two DxI 800 (immunoassay) systems
- DxH 900 - 2S (hematology) system
- Combined outlet and 6.5K ECSD (environmentally controlled storage device)
- All integrated with premier informatics products, REMISOL Advance and DxONE Command Central



Dual Centrifuge

Outlet & ECSD

Post-Analytical Module

Dynamic Inlet

Pre-Analytical Module



DxH 902 - S

Hematology

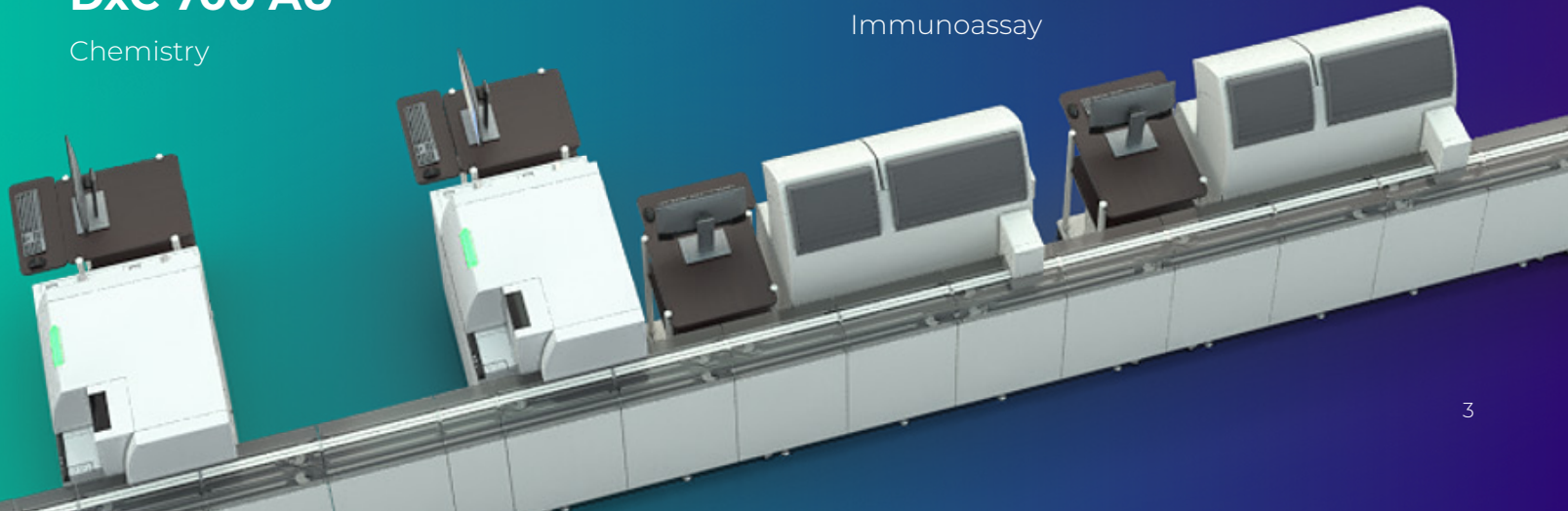


DxC 700 AU

Chemistry

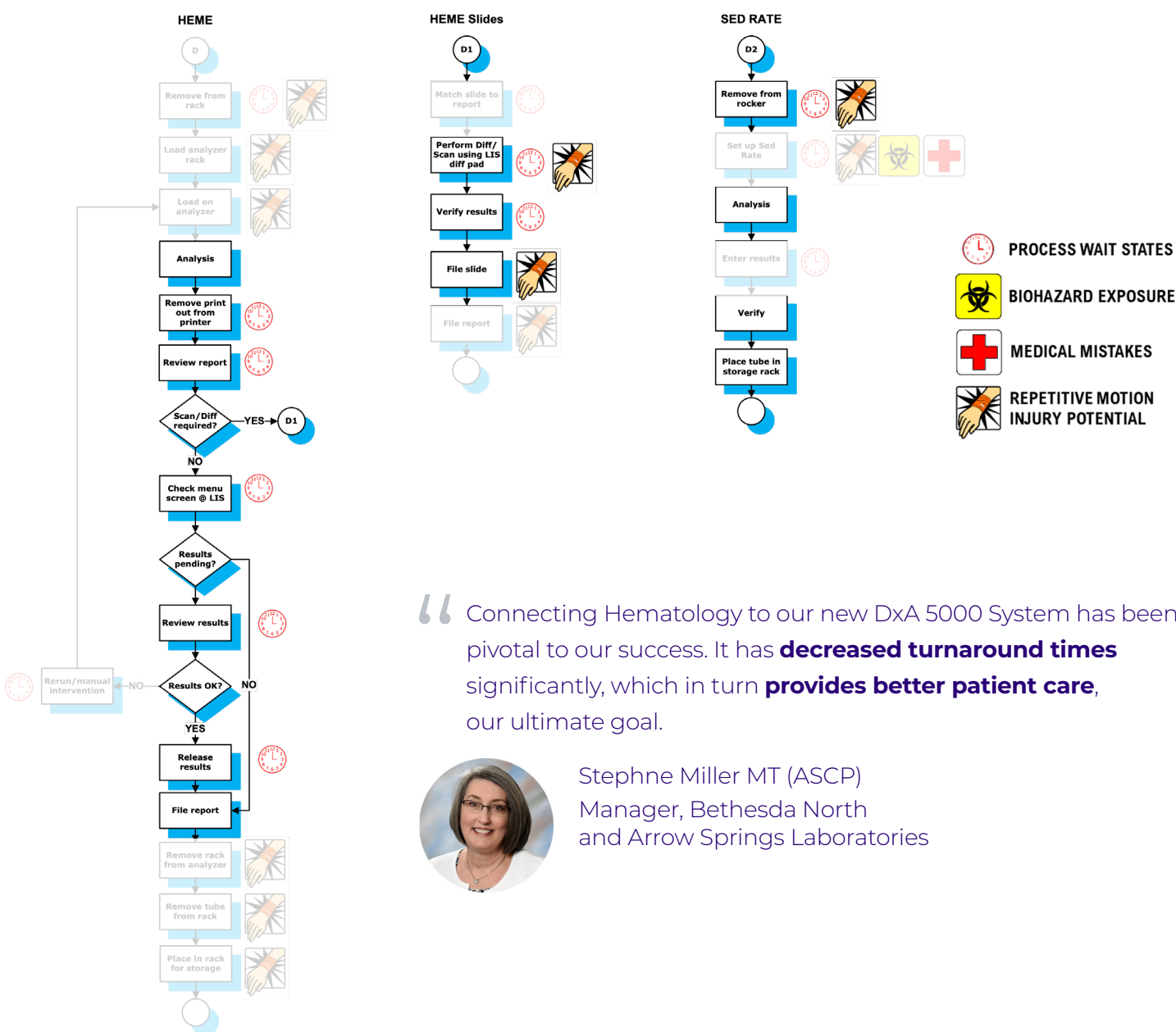
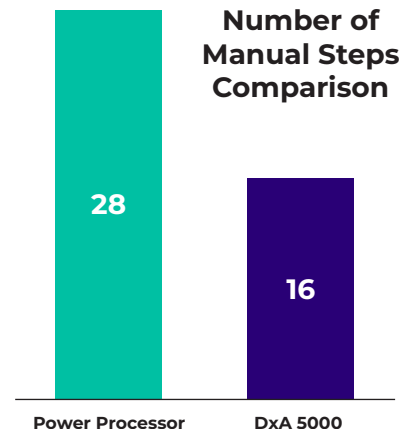
DxI 800

Immunoassay



PRE-EVALUATION

Bethesda North was an automated laboratory prior to adding their DxA 5000 solution. They installed Beckman Coulter's first-generation automation, Power Processor, in 2010. As an automated laboratory, the number of manual process steps had been reduced to 28 steps spanning the pre-analytical to post-analytical phases of testing. However, with the DxA 5000 System configuration and the addition of a connected hematology workcell, the lab was able to reduce their total number of process steps even further, automating all but 16 manual process steps, a 43% reduction in non-value added work being previously performed by the lab staff.



“Connecting Hematology to our new DxA 5000 System has been pivotal to our success. It has **decreased turnaround times** significantly, which in turn **provides better patient care**, our ultimate goal.

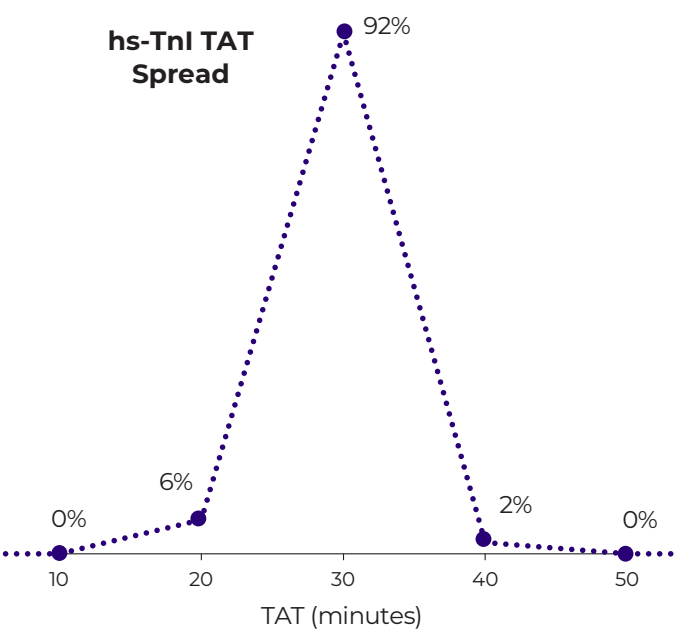


Stephne Miller MT (ASCP)
Manager, Bethesda North
and Arrow Springs Laboratories

QUANTITATIVE RESULTS – TURNAROUND TIMES

Turnaround Times Comparison (Receive to Result)				
in minutes		Power Processor	DxA5000	
	K+	61	27.1	↓
	SD K+	39	5.5	
	TnI	52	32.3 (hs-TnI)	↓
	SD TnI	26	4.0	
	HGB	30	6.6	↓
	SD HGB	32	4.1	

After installation, it was important for Bethesda North and Beckman Coulter to evaluate the DxA 5000 System’s performance to ensure that it was working as expected. For each key assay evaluated, there was **significant reduction and sustainment of turnaround times**. The chart above outlines the turnaround time for potassium, high-sensitivity troponin (hs-TnI), and hemoglobin. One of the largest gains was the addition of a hematology connection (DxH 900 – 2S), which led to a significant reduction and greater consistency in hematology results.

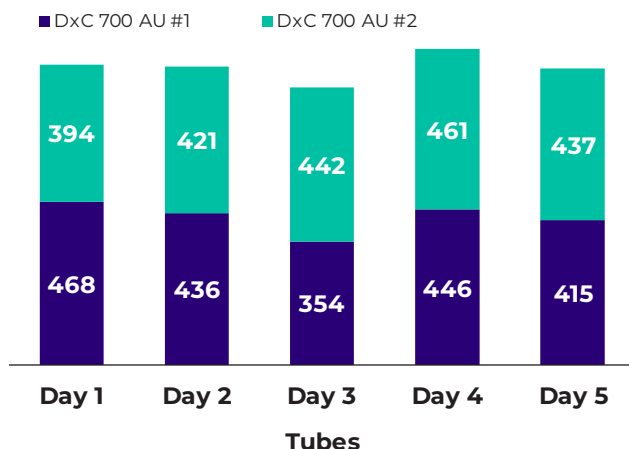


A major objective when implementing automation is to demonstrate measurable consistency of turnaround times and treatment of samples. When the TATs were assessed, it is easy to notice the large spike in similar completion times. For hs-TnI, **98% of samples are completed before the 40 minutes with a 95th percentile being 38 minutes** for this essential assay. The larger the spike, the more consistent the turnaround time and greater proof that the DxA 5000 System was working as expected.

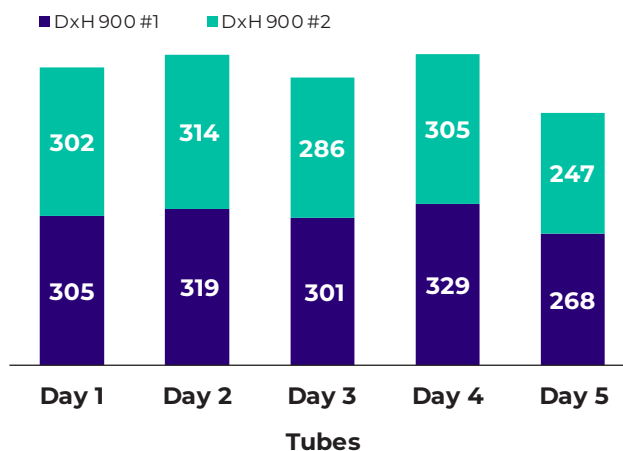
QUANTITATIVE RESULTS – WORKLOAD BALANCE

Analytics across a 5-day period determined DxA 5000 System is properly routing samples and distributing the workload between instruments evenly. Balancing the workload ensures better turnaround times, reduced wear and tear on instrumentation, etc. The chemistry instruments (DxC 700 AU), immunoassay analyzers (DxI 600), and hematology workcell (DxH 900 – 2S) based upon the data collected are equally receiving consistent volumes of work throughout the day.

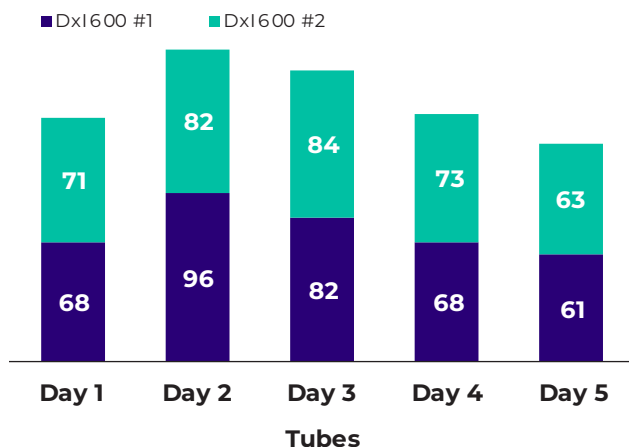
Tube Distribution - DxC 700 AU #1 and #2



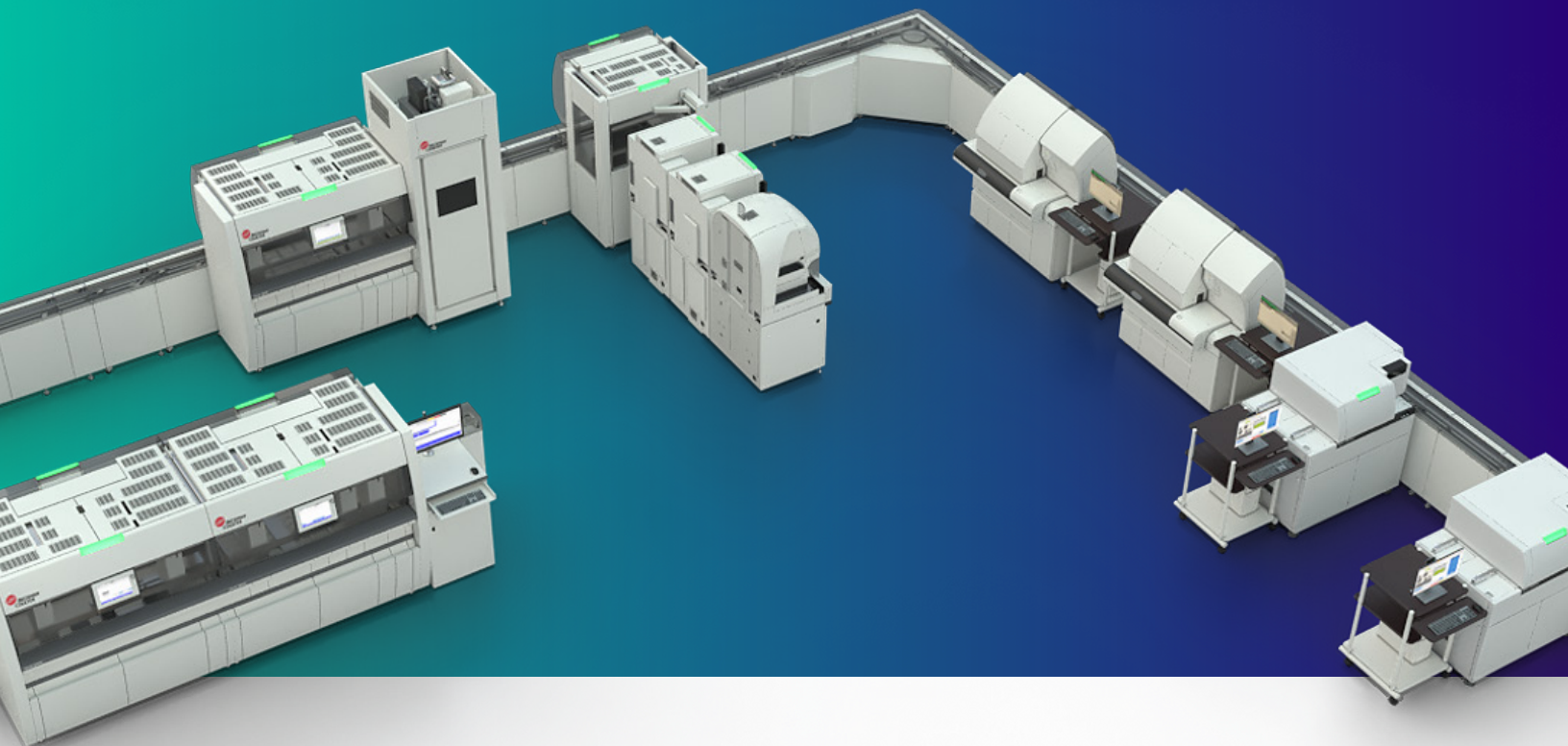
Tube Distribution - DxH 900 #1 and #2



Tube Distribution - DxI 800 AU #1 and #2



IN CONCLUSION



With the addition of the DxA 5000 System, the Bethesda North laboratory has **fostered a culture of excellence**, rooted in continued process improvement.



The DxA 5000 System helped Bethesda North offer an **improved level of service** and consistent turnaround times to clinicians.



The DxA 5000 System allowed Bethesda North's laboratory to **profitably grow** by regaining outreach work.



Learn more about Beckman Coulter's automation portfolio

<https://www.beckmancoulter.com/en/products/automation>



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2025-13854

