

Caresphere™ Workflow Solution (WS)

Clinical Software
for busy labs



Caresphere Workflow Solution (WS)

Caresphere WS is the next generation of clinical laboratory workflow management software. Promoting standardization across a network of laboratories while still offering customization of rules and settings where needed allows for flexibility in sample processing and workflow support. Sysmex is dedicated to helping labs manage the burgeoning testing requirements and increasing workflow efficiency needs through automation. Project Management and a team of experts support your laboratory’s success during the implementation process, while virtual training and technical assistance are unlimited for the life of the product. With a security system certified by HITRUST CSF®, Caresphere WS is a HIPAA‡-compliant application hosted by Amazon Web Services.


The Caresphere WS subscription includes real-time monitoring, all software updates and a reliable pricing model that together offer dependable performance and peace of mind to your laboratory.

Caresphere WS Subscription		
Caresphere WS		Sysmex WAM™
✓	Unlimited access to virtual education	✓
✓	Test environment included	✓
✓	Automatic security updates and disaster recovery	✗
✓	CareWise notification system	✗
✓	Compatible with AWS Direct Connect for highly resilient network connections	✗
✓	Major software updates and automatic patching	✗
✓	Software as a Service (SaaS) payment option	✗
✓	Sysmex Validation Solution software	✗
✓	Real-time monitoring through Amazon Web Services (AWS)	✗
✓	Unlimited connected analyzers with no add-on cost*	✗
✓	Unlimited users with no license add-on costs	✗
✓	HITRUST CSF-certified	✗
✓	Offline Mode sample reporting	✗

‡Health Insurance and Portability and Accountability Act

*Approved third-party device connections may incur additional fees.

Robust security

- HIPAA-compliant application hosted in AWS cloud
- Live infrastructure monitoring
- Directory services user management
-  HITRUST CSF-certified

Streamlined workflow

- Autoverification based on Sysmex analyzer technology
- Standardization across multiple sites and analyzer configurations
- Customizable workflow screens
- Standard rule functionality reflects International Society of Laboratory Hematology (ISLH) recommendations and common procedures
- Stat, critical and turnaround time indicators
- Differential keypads allow configuration based on individual preference

Ease of deployment

- Sysmex Project Management team coordinates the entire implementation process
- Implementation tools include rules, configuration and conversion wizards with Sysmex Validation Solution included
- Virtual training
- Remote experts support the entire validation process

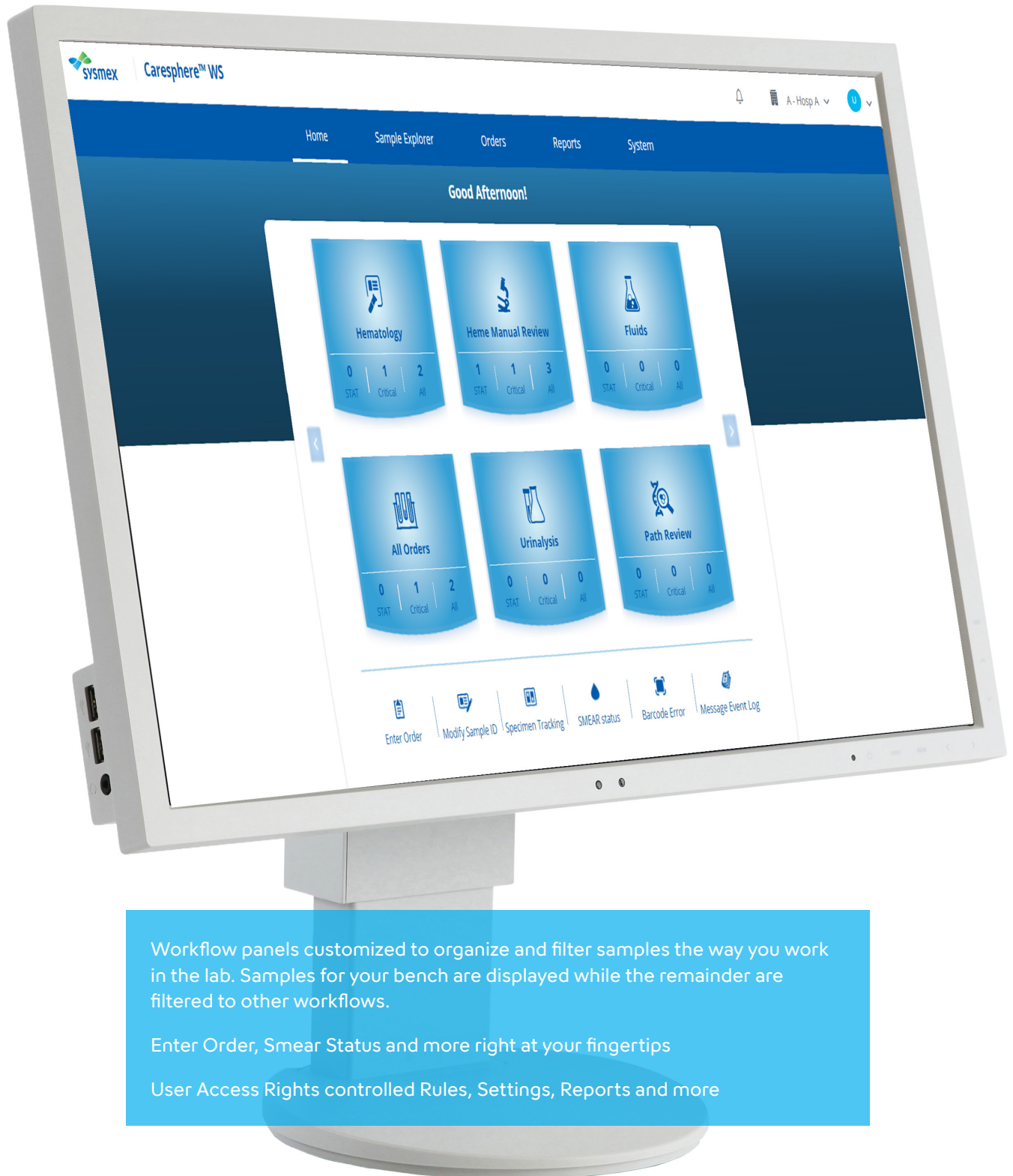
CareWise

CareWise provides communication benefits, all delivered right to your inbox or mobile device:

- Software Releases
- Maintenance Events
- Service Impacts



Homepage with Customizable Workflows



Workflow panels customized to organize and filter samples the way you work in the lab. Samples for your bench are displayed while the remainder are filtered to other workflows.

Enter Order, Smear Status and more right at your fingertips

User Access Rights controlled Rules, Settings, Reports and more

Hematology: Result Validation

The screenshot displays the Caresphere WS interface for a hematology test. The patient information at the top includes Sample ID 654987951, Name TEST, CRINRBC019, MRN MR820399, DOB 03/09/2004, Age 18 years, Sex Unknown, Physician Johanssen, Eric A, Collection d/t 04/18/2022 11:36:04, Receipt d/t 04/18/2022 11:36:04, and Care Unit North 3.

The main test results table is as follows:

Test	Result	Comment	Rerun	Prev Res	Prev Com
WBC	0.10		5.88	5.88	
NRBC Auto %	0.1			0.1	
NRBC Auto #	0.01			0.01	
RBC	4.82	...		4.82	
HGB	18.1			10.0	
HCT	45.4	...		45.4	
MCV	94.0			94.0	
MCH	30.0			30.0	
MCHC	33.2			33.2	
RDW-CV	13.0			13.0	
RDW-SD	44.7			44.7	
PLT	8	...		10	
MPV	12.4			12.4	
NEUT Auto %	56.7			56.7	
LYMPH Auto %	34.5			34.5	
MONO Auto %	5.4			5.4	
EOS Auto %	2.7			2.7	
BASO Auto %	0.5			0.5	
IG Auto %	0.2			0.2	
NEUT Auto #	3.33			3.33	
LYMPH Auto #	2.03			2.03	

Key interface elements are numbered 1 through 5:

- 1 OP Alerts:** A sidebar on the left containing 7 items, including critical alerts for WBC, PLT, and NEUT, and delta alerts for HGB, WBC, and PLT.
- 2 Manual review:** A checkbox at the top of the test results table.
- 3 Analyzer Results:** A callout box highlighting the HGB result of 18.1.
- 4 Manual:** A section on the right for manual review, including a 'Manual' checkbox and a table for manual test results.
- 5 Sample List:** A list on the far right showing 21 items, with the top item highlighted in red.

- Negative samples autoverify, allowing focused expertise where it is needed the most
- Everything needed to make quick and informed decisions for samples held by rules.

1 OPERATOR ALERTS
Integrated laboratory procedures streamline decision-making and reduce risk. Real-time visibility of next steps improves process standardization.

2 MANUAL WORKFLOW INDICATOR
Shift patient samples to the manual review workflow to keep pending lists efficient and concise.

3 ANALYZER RESULTS
Current and rerun data available for review and comparison with the most recent previous results. Color coding calls attention to critical or delta results for faster decision making.

4 MANUAL AREA
Pending and completed manual processes and results ensure laboratory standard operating procedures are followed and reviewed.

5 SAMPLE LIST
Automated organization of samples to easily identify stat and critical samples as well as samples exceeding lab TAT to achieve faster processing and better results for patients.

Hematology: Manual Differential

- When a CellaVision is not used, perform manual differential directly into Caresphere WS
- Differential keypads designed to individual user preference
- Comparison of automated and manual results
- Automatic calculation of absolute differential counts

Hematology: Morphology Results

- When a CellaVision is not used, result morphology directly into Caresphere WS
- Morphologies based on laboratory reporting options
- Manual entry of results requires less clicking
- Customize grading or quantifying results

Urinalysis: Result Validation

The screenshot shows the Caresphere WS interface for Urinalysis Result Validation. At the top, there are navigation tabs: Home, Sample Explorer, Orders, Reports, and System. Below this is a patient information header with fields for Sample ID (13435435), Name (Smith, John Aaron), MRN (12343212), DOB (02/28/1987), Age (35 years), Sex (Male), Physician (Anderson, Paul John), Collection d/t (04/28/2022 14:22:48), Receipt d/t (04/28/2022 14:22:48), and Care Unit (3 West). Below the header is a table of test results with columns for Test, Result, Comment, Rerun, Prev Res, and Prev Com. The tests listed include Urobilinogen (0.2), Blood HGB (Negative), Bilirubin (Normal), Ketone (Negative), Glucose (Negative), Protein (Negative), pH (8.0), Nitrate (Positive), Leukocyte Esterase (Moderate), Specific Gravity (1.010), Color (Yellow), Cloudiness/Clarity (Cloudy), UF RBC (0.3), UF WBC (5.8), and UF Bacteria (25.9). On the right side, there is an 'Images' section with a 'Manual' tab and a 'Sample List' section. The 'Manual' tab has sub-tabs for Diff, Morph, and Fluid Count, and a table for manual verification of results.

- Autoverification and standardization of UN-Series workflows
- Urinalysis specific rules and reports
- Hematology and Urinalysis in one unified solution

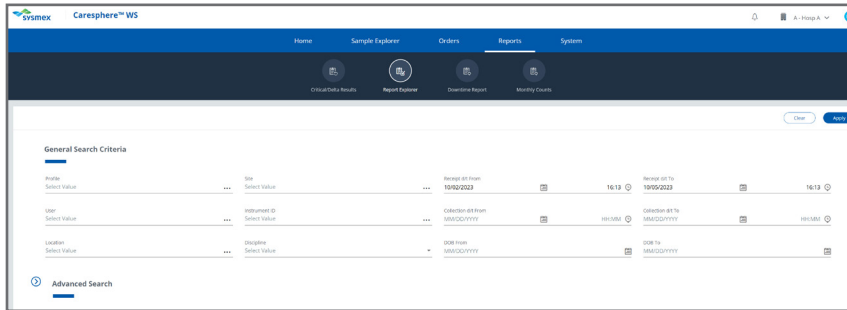
Urinalysis: Morphology

The screenshot shows the Caresphere WS interface for Urinalysis Morphology. At the top, there is a 'Morphology' header with a close button. Below this is a patient information header with fields for Sample ID (13435435), MRN (12343212), Name (Smith, John Aaron), DOB (02/28/1987), Age (35 years), Sex (Male), Collection d/t (04/28/2022 14:22:48), Receipt d/t (04/28/2022 14:22:48), Care Unit (3 West), and Room Number (3W - 302-1). Below the header is a table of morphology results with columns for Test, Result, Comment, Prev Res, and Prev Com. The tests listed include RBC Micro (Present), Isomorphic RBC, WBC Micro (Present), WBCClump Micro, EC Micro, Squamous Micro, TransEC Micro, RTubular Micro, Columnar EC, Oval Fat Bodies, Atypical Cells, HyalineCast Micro, Epithelial Casts, Granular Casts, Waxy Casts, and Fatty Casts. On the right side, there is an 'Instrument' section with a table of instrument data. The 'Instrument' table has columns for Test, Result, and Comment, and lists the same tests as the morphology table with their respective results.

- Enter results directly into Caresphere WS when UD-10 Urine Particle Digital Imaging Device is not used
- Ensure standardization across your health system
- Confirm urine chemistry and sediment results

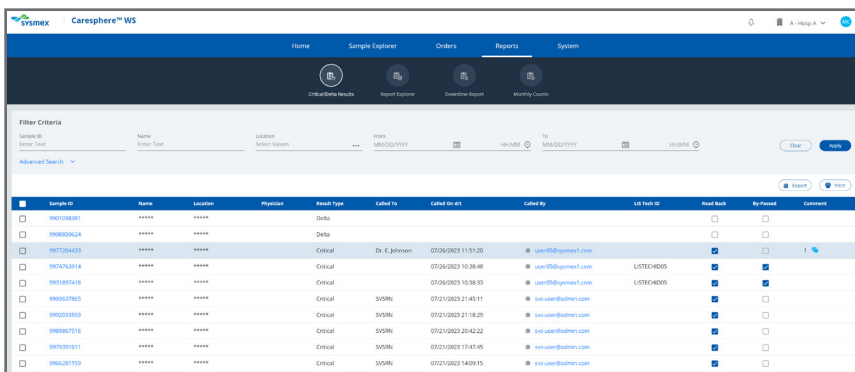
Reports

Report Explorer



- Review lab metrics with a few clicks
- Sort and filter to pinpoint crucial information quickly
- Data driven optimization opportunities

Critical/Delta Results Report

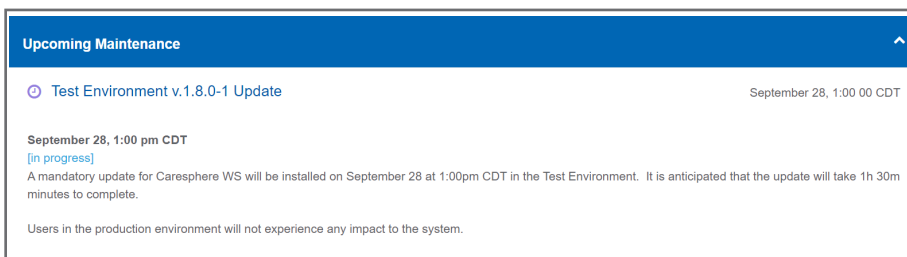


- Critical and Delta Call Documentation
- Downtime Reports
- Count/Turnaround Time Statistics
- Result Statistics
- Autoverification Statistics
- Rules Statistics
- Monthly Sample Counts

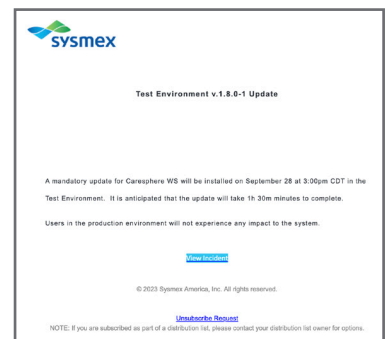
CareWise Communications

CareWise is the primary communication method for Caresphere WS. It is located outside of Caresphere WS to ensure communication is still available even when you are experiencing issues. Registered users will receive email or optional text message notifications to provide up to date information you need to know about your solution.

CareWise website notification



CareWise email notification



- Software Releases
- Maintenance Events
- Service Impacts

Efficiency Meets Functionality

Rules Validation

- Assists with aspects of on-going testing recommendations
- On-demand testing of new or modified decision rules
- Integrated as part of implementation process to improve the time to go-live with Caresphere™ (WS)

Streamlined Rules Validation

- One-click launch from Caresphere WS
- Automatically creates testing scripts against the defined rules
- Access to Sysmex emulators to mimic specific flags and results
- Comprehensive, on-demand reports and ability to view results
- Walk-away testing completes test scripts and captures evidence automatically
- Digital analyzer emulators reduce need for physical analyzer testing

Sysmex Validation Solution (VS)



Simplify rule testing with Sysmex VS

Sysmex VS is an application that provides effortless rule testing and reporting in cooperation with Caresphere WS.

Sysmex VS provides

- Easy and simple testing and reporting to assist with regulatory compliance
- Reduction in time spent validating rules
- Emulators, or digital analyzers, allow for rules testing without the need to halt patient sample processing

Emulator Suite

Emulators, or digital analyzers, can send specific analyzer results and flags to Caresphere WS. Rules criteria can be tested without the use of physical analyzers, decreasing patient sample downtime for rules validation testing.

Available emulators:

- XN-Series™
- XN-L Series™
- X-Series™
- CellaVision®
- Sysmex DI-60™
- Urinalysis Data Manager™
(Manual testing only)
- Simulate analyzer results
- No patient sample downtimes for testing
- Thorough rule criteria validation
- Integrates with Caresphere WS

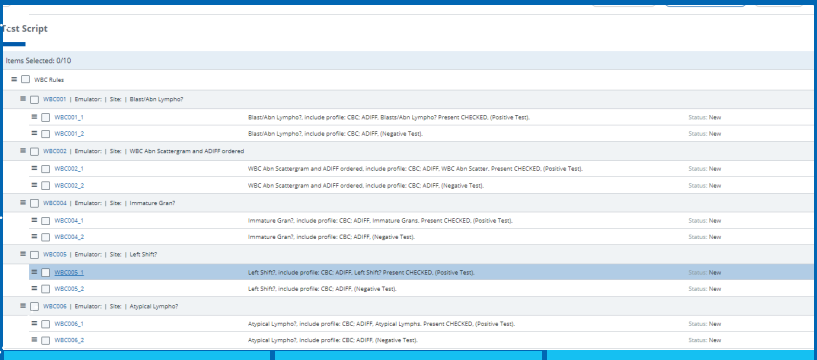
The screenshot displays the Sysmex XN emulator interface. The top navigation bar includes the Sysmex logo, a user profile for 'Administrator' (Online, Setting), and system information: 'LOCAL: staging-prod-marketing-xnic.smhealth.net HOST: 198.51.100.4:3000 ONLINE'. The main content area is titled 'XN' and features a 'MAIN NAVIGATION' sidebar with options for CellaVision, XN, XN-L, X-Series, and UDM. The 'Analysis Results' tab is active, showing a grid of test results for various parameters. Each parameter is accompanied by a checkbox, a numerical value, and a unit with a dropdown arrow. The parameters are organized into sections: CBC, Diff, PLT-F, Retic, Body Fluid, and WPC.

Parameter	Value	Unit
WBC	5.88	10 ³ /L
RBC	4.82	10 ⁶ /L
HGB	15.1	g/dL
HCT	45.4	%
MCV	94.0	fL
MCH	30.0	pg
MCHC	33.2	g/dL
PLT	224	10 ³ /L
RDW-CV	13.0	%
Neut%	56.7	%
Lymph%	34.5	%
Mono%	5.4	%
Eo%	2.7	%
Baso%	0.5	%
IG%	0.2	%
Neut#	3.33	10 ³ /L
Lymph#	2.03	10 ³ /L
Mono#	0.32	10 ³ /L
IPF	4.2	%
IPF#	9.4	10 ³ /L
Ret%	1.21	%
Ret#	0.0561	10 ⁶ /L
Ret-He	32.4	pg
IRF	6.6	%
WBC-BF	0.323	10 ³ /L
RBC-BF	0.083	10 ⁶ /L
TC-BF#	0.323	10 ³ /L
MN%	28.8	%

Reduction in time spent validating rules


Automated, intelligent software runs positive and negative testing scripts with minimal effort

System-generated reports offer effortless assistance with decision rules validation testing



Implementation
On-Going Compliance
Software Release Testing

Sysmex VS Report Example Page



Sysmex Product Marketing


Date: 08/09/2022
Time: 10:29


Dry Testing Report

Rule Types: WBC Rules
Rule Name: WBC005

Rule Description: Left Shift? and ADIFF ordered	Sample IDs: 9974676547
OP Alerts: Perform manual differential	
Test Script: WBC005_1	
Test Script Description: Left Shift? and ADIFF ordered, include profile: CBC; ADIFF, NEUTAB Present DEFAULT; Left Shift? Present CHECKED, (Positive Test).	Sample ID: 9974676547

Emulator


LOCAL: staging-prod-marketing-xmic.smahealth.net HOST: 198.51.100.4:3000 ONLINE



Administrator

● Online ⚙ Setting

XN

Units (US) | Monitor | Default | Query | Send | Stop

Connection | Sample Info | Analysis Results | QFlags | IP Flags

Collection Info

Date	08/01/2022	Sample Number	9974676547	<input type="checkbox"/> Increment and Loop	1 Times
Time	17:25:18	Sample Info	Barcode Reader	<input type="checkbox"/> Random Results	
		Rack Number	1	<input type="checkbox"/> Delay	0 Seconds (max.60)
		Tube Position	1		
		Serial No. of Analyzer	11105		
		PS Code	AP195756		

Analysis Info

Automated Report

- Sort and Archive
- Automated Rerun
- Automated Reflex
- Hematocrit-based Smear
- Customized slidemaking allows for stat or multiple slides

Standardized Workflows

- Manual Differential
- Morphology
- Digital Imaging Integration
- Critical and Delta Result Call Documentation

Beyond Autoverification

What Happens next?

Complementary Technologies

- Urine Chemistry
- Urine Particle
- Urine Microscopy
- Hemoglobin A1c
- Sedimentation Rates

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