



*Uniface Supports a  
Sophisticated Laboratory  
Application that Helps  
Technicians and Clinicians  
Make Medical Decisions*



**▶ CUSTOMER**

Sysmex

**▶ SECTOR**

Healthcare

**▶ COUNTRY**

U.S. and Canada

**▶ CHALLENGE**

Streamline and automate vital hematology testing used for medical decisions

**▶ RESULTS**

- A scalable solution supports organizations of any size.
- Automation meets increasing demand with limited resources.
- Highly reliable, standardized and predictable results used by medical professionals.
- Sysmex Uniface developers maintain a standard software product on behalf of hundreds of clients and end-users.

### 10 Ways Uniface Helps You Succeed

#1 PRODUCTIVITY

#2 RELIABILITY

#3 SECURITY

#4 INTEGRATION &  
REUSE

#5 SCALABILITY

#6 AGILITY

#7 SUSTAINABILITY

#8 TECHNOLOGY  
INDEPENDENCE

#9 COMMUNITY

#10 PARTNERSUNITED  
PROGRAM

## Introduction

When you are carrying out important medical tests, you need a solution that's highly reliable and scales to cope with virtually any workload.

Sysmex America, Inc. develops, sells and supports laboratory testing instruments for hematology analysis. It provides healthcare laboratories with the tools, service and support to meet the challenges of increasing demand and decreasing resources in the clinical diagnostic field.

The company also supplies its own middleware system to link the analysis devices to one another and to third-party laboratory information systems (LIS), making a potentially highly complex scenario simple to run.

This middleware system, known as Sysmex WAM™ Decision Support Software, brings value to labs by enabling efficiency and increased capacity without increasing staff. Sysmex WAM may help reduce workload, minimize specimen handling and eliminate processing steps, allowing technologists to focus on complex and variant results and supporting goals of quality patient care and safety. It also further assures quality by developing and enforcing proven, repeatable processes.

Sysmex WAM is written in Uniface, and is sold as a turnkey system with configurable rules, complete with hardware, and in conjunction with other Sysmex products including the analysis devices. The Sysmex WAM solutions are in 9 out of the top 10 U.S. hospitals.

## Streamlining Hematology Testing

The Sysmex WAM software, written in Uniface, runs in a range of laboratories, hospitals and clinics. The primary purpose of the solution is to allow a technologist to review results in an efficient manner. The application applies rules to identify which results need to be reviewed. The negative results are automatically passed to the LIS, which is then sent to the clinician. This enables the technologist to focus on the exceptions – that is, the test results that need special attention.

In a multi-site setup, the user can review results generated from all the sites on a single screen. Typically, a client processing over 100,000 samples a day needs just three or four technologists. Up to 90% auto-validation can be achieved by a large site like this – slightly less (perhaps 85%) for a medium one.

In addition to the results analysis, the application also handles the workflow process that routes samples within the automation system – from the initial reception, through analysis, to the reporting of results to clinicians.

“We have many different client types, which include running from 400 samples a day to over 100,000. The software adapts and scales easily; we just install different sized servers”

Anne Tate,  
IT Automation Group Manager,  
Sysmex America, Inc

## A Flexible Rules-based Approach

At the heart of the application is a rules engine that is used to identify when reviews of hematology results are needed, and also to route the sample appropriately and manage the instrumentation. The application comes with a pre-defined set of rules based on best practices, which can be supplemented and amended to reflect the client's own best practices.

To decide what to do with a given sample, the instrument reads that sample's unique barcode and queries Sysmex WAM, for the order and sends back a list of tests to be performed. The technologist can also adjust the workflow on the fly – for example, notify a clinician of a result earlier than scheduled, add another test, or re-run a test.

## Why Uniface

The application was originally launched in 2004 and has always been completely written in Uniface, including the user interface and all the underlying code. Sysmex has consistently evolved and improved WAM since the initial launch throughout the lifecycle of the application, Uniface has been supportive of Sysmex WAM requirements, and has provided continued support without the need to introduce additional technologies.

**Scalability and performance.** Uniface's ability to process large volumes efficiently was one of the major reasons for its original selection, according to Anne Tate, IT Automation Group Manager, Sysmex America, Inc. “We have many different client types, which include running from 400 samples a day to over 100,000. The software adapts and scales easily; we just install different sized servers.”

She adds that this scalability is a major benefit for individual clients, too. They can start off with just a couple of sites and then easily add more if there is a merger or acquisition, for example. “Our largest clients have 30 to 40 testing sites, and there is one entire state that uses it. Our Uniface application can support a variety of laboratory environments regardless of size.” Even the largest client has just a single instance of the system and a shared database for all the sites.

**Reliability.** The solution is mission-critical to the labs, as resources decrease and workload increases. Sysmex WAM eliminates the need for technologists to review every result manually. With WAM, they only need to review the exceptions. In some cases, labs used to report on a sample within 30 minutes, and now the turnaround time is going down to just 20 minutes.

Meeting these targets can be critical in supporting important clinical decisions. “Uniface easily satisfies the reliability requirement,” says Anne.

**Ease of integration.** The nature of the application is such that it needs to communicate in real-time with a range of other solutions: Sysmex's own instrument, approved third-party instrumentation, and a range of over 40 LISs. Because most of the elements follow industry-standard protocols HL7 and ATSM, Sysmex doesn't need a separate interface for each type of hardware or software but it still has to maintain a number of them, and Uniface makes this easy. The communication is handled via C-programs that communicate very well with Uniface, using the Uniface link in libraries. Uniface provides seamless integration of 3GL and 4GL languages.

**Productivity and stability.** The entire solution is maintained in-house by just two developers. The system consists of 500 forms, 225 services and 40 reports. The application is stable and changes made to the application are just for routine maintenance.

**Ease of modernization.** Initially there was a simple, function key driven, user interface. This has been completely modernized with icons and point-and-click functionality, but the function keys are still available for the benefit of customers that are used to them. The interface has also been made to match that of the Sysmex instrumentation. An alert bar has been added to tell technologists about any connection issues affecting the instrumentation or any problems with other system elements such as the database.

## Maintaining Competitive Advantage

Uniface helps Sysmex maintain its position as a leader in the hematology testing field by using automation to ensure a rapid turnaround time for samples. The solution provides clients with predictability and standardization of results reporting, enabling medical professionals to rely on the quality of the output. The strong working relationship between Sysmex and Uniface ensures that this will continue to be the case in the future.







### *About Uniface*

Uniface, the most productive, reliable development tool in the industry, provides a model-driven environment for the rapid development of scalable enterprise mission-critical applications. Learn more at [www.uniface.com](http://www.uniface.com)

