TestStream®
Sunquest® Laboratory and Blood Bank
Quality assurance for your blood bank system
Frequent testing of your laboratory and blood bank systems is critical to patient safety. But it can take a heavy toll on your organization's resources—especially given the growing complexity of blood bank applications.

**TestStream's solution** for validating Sunquest® laboratory systems, including blood bank transfusion, general lab and micro, is designed for unparalleled ease, coverage and speed of validation testing. The benefits: vastly improved cost-efficiency and truly comprehensive assurance of patient safety.

Featuring a revolutionary Scenario Definitions solution and a library of client-specific workflow scenarios developed by specialists highly experienced in FDA, AABB and CAP regulations, TestStream frees you from having to wait on consultants for validation or pay exorbitant recurring fees. TestStream's intelligent technology adapts automatically to updates and enhancements to your system, so there's no need for ongoing programming or scripting.

Our Blood Bank Validation conforms with the validation testing elements required under FDA, ISBT, AABB, EU and Australian guidelines, and is packed with useful features.

**Our features include:**

- Screen shots during workflow steps, providing proof of testing
- Digital signature capabilities
- Test-case cross reference for Pass and Fail reports
- Error causal analysis and remediation guidance
- Comparison of database build and test result data
- Build content comparison through migration between environments
- Enterprise-wide result set access, management and defect tracking
- Patient-safety assessment of your system
Patient/Unit Compatibility Validation

The Challenge
Managing the risk that comes with giving blood components to patients requires setting up patient/unit compatibility rules, a process that's complex and labor-intensive. A single setup error along the way can corrupt the accuracy of the rule processing—and compromise patient safety.

How We Help
TestStream can help your organization make sure that only appropriate blood components are issued. It can quickly, automatically test thousands of patient/product rules, identifying every combination of blood component type and patient type. After each rule has been reviewed and accepted, TestStream compares the application response for every combination of each blood component against all patient ABO/Rh types, including the product issue to patients with an unknown ABO/Rh.

TestStream automatically processes the product entry, the product testing (if necessary), and the ordering and resulting of the appropriate test battery associated with the product group, with the product issue finalizing the sequence. At the end, you get a Pass and Fail report showing which combinations matched the expected response and which didn’t.
Blood Bank Interpretations Validation

The Challenge
Resulting tests within the Sunquest Blood Bank System is done using interpretations through the reaction grids. Testing the accuracy and reliability of these interpretations is a laborious and complicated process, but one that’s essential to patient safety—and mandated by regulatory agencies accordingly. But due to the size and complexity of the interpretations setup, performing ample testing manually is next to impossible.

How We Help
TestStream can easily test thousands of interpretation combinations in the Blood Bank system. It can compare the system response for every combination of all individual reaction results against the expected interpretation, verifying the QA warnings as necessary. Due to the sheer magnitude of combinations available, TestStream allows individual procedures, groups of procedures or combinations of procedures to be processed.

As TestStream reviews the Sunquest system, it will determine the valid responses and then determine what types of mistakes are possible when reaction results are entered. From this it determines the expected response in every case. TestStream then processes each interpretation combination through the results reaction grid, entering the appropriate keyboard entry in each case, and continually evaluates the application’s response to see if it’s correctly handling the interpretation’s expected result. Any unexpected outcomes are reported.
Laboratory Order and Result Validation
The Challenge
The Sunquest® Laboratory system is the hub of the entire system. But because of its size and complexity, it’s simply not practical to test manually.

How We Help
TestStream ensures that every test code in the system can be processed, by ordering and resulting every item. Numerous resulting options are available, from random result entry to specific reference range entry. For interface testing, a result delta can be defined to request that the solution enter results just above or below the normal reference ranges, thereby triggering the critical and verify flags automatically for review in downstream systems.

TestStream registers a patient and orders a test, then results as appropriate and inquires on the result. The application or functions used for the various actions within the process can be defined on a test-by-test basis, allowing a mixture of Sunquest Gateway GUI applications and roll-and-scroll functions. All results are collected and included in the TestStream reports. Patients can be generated automatically by the test or defined beforehand, allowing interface patients to be used in the testing cycle. Certain parts of the processing can be switched on and off. For example, multiple test runs can be executed in which orders are placed on day one and the resulting is not performed until day two. The resulting can also be skipped entirely, allowing instrument testing to be integrated into the automated solution. A Pass and Fail report indicates which procedures can be processed.

You’ll see all the results and proof of testing screen prints in comprehensive post-test reports. Reports can be digitally signed right within TestStream and stored, or uploaded somewhere else, such as a SharePoint site or network location.

Complete Testing Coverage
TestStream will order and process every package, battery and test code in the system, resulting as appropriate. The inquiry details are compared against the results entered for verification.
The Challenge
Validating your organization’s Meaningful Use Results Reporting (MURR) Interface is the only way to know for sure that your data is being reported to the Department of Health correctly—so you get compensated accordingly. But manual testing would be a never-ending task.

How We Help
TestStream does the work for you, with comprehensive, automated testing of your Meaningful Use Results Reporting Interface.

TestStream automatically understands your Sunquest environment, and can build a complete testing sequence for every result in your system that’s defined to trigger an HL7 transaction. You choose which results to test, and TestStream will generate test cases and scenarios for each result—registering the appropriate patients and placing the appropriate order to generate the specified result. It then executes the test, verifying that each HL7 transaction triggers in the Sunquest and SAM system.
Calculations Processing Validation

The Challenge
One of the strengths of the Sunquest system is that it lets you create calculations and formulas that trigger complex actions on specific results. But mandatory testing of these calculations is time consuming, labor intensive and prone to human error.

How We Help
With TestStream Sunquest Calculations Validation, you can validate calculations automatically, and generate the reports to prove it. All you have to do is choose which calculations to test and let TestStream do the rest.

TestStream reviews each calculation you specify and automatically generates test cases for each one, including specific location and patient age, sex, type requirements, and values that will trigger specific conditions. Then it tests every sequence. After the test, you'll get comprehensive, easy to read reports with calculation details and specific results, so you can see where calculations failed and fix any issues. You'll also get proof of testing screen prints that can be digitally signed directly within TestStream or uploaded to different result locations like a SharePoint site or network location.

Accurate Calculation Validation
TestStream automatically recognizes all of the calculations in your system. You choose which ones to test.
**TestStream’s flexible** Scenario Definition System and robust Defect Tracking and Risk Management features are designed to help you improve the quality and safety of your systems over time.

**Scenario Definitions System**
The sophisticated TestStream Scenario Definition system allows virtually any process flow to be defined, replicating actual processes in your test system. Our seasoned nurses and Blood Bankers use this system to create dozens of patient and product journeys that exactly replicate your SOPs, while at the same time covering the appropriate CAP, FDA and AABB validation requirements.
**Included Defect Tracking**

The Vedant Defect Tracking system ensures that any issues encountered can be tracked from testing right through to resolution—and never get lost along the way. The Defect Tracking system is integrated with the TestStream test results sets, so any issues in any test can be easily added to the defect system. Manual testing results can also be submitted, so all testing can be recorded and tracked in one place.

**Seamless Defect Tracking**
Both manual and TestStream results can be easily tracked through all test cycles.

**Risk-Based Quality Management**

TestStream’s Risk-based Quality Management module, included with every TestStream installation, provides a straightforward and comprehensive way to prioritize testing and error remediation according to the level of safety risk. Each error encountered during testing is thoroughly analyzed and assigned a specific risk level, ranging from critical patient safety down to nominal. Testing cycle activity can then be prioritized based on level of risk, and protocols established for re-testing to verify that errors have been remediated.

**Comprehensive Risk Management**

TestStream analyzes and classifies the patient safety risk of each error, so you can prioritize error remediation.
Comprehensive, Efficient Blood Bank Validation Services
If you don’t have the internal resources to run regular system validations with TestStream, our expert team can help. Our Blood Bank Validation service extensively covers all areas of the blood bank system—doing much more than just “checking the box”—and conforms with the validation testing elements required under FDA, ISBT, AABB, EU and Australian guidelines. We provide comprehensive documentation with each test.

Our features include:

- Screen image captures for every validation workflow action.
- Digital signature support for test results review.
- Large scale validation and verification of the scenario patient workflows, Patient/Unit Compatibility rules and Interpretations (result reactions), covering thousands of combinations.
- Operational qualification validation scenario workflows mapped directly to compliance requirements, so a regulatory inspector can identify exactly where and when specific functionality was validated.

Regression Testing
Organizations can also use TestStream on an ongoing basis for service pack regression testing as well as re-testing and re-validation cycles at a fraction of the cost of other options.

Results Mapped to AABB Requirements
The spreadsheets provided after each test show exactly where each and every AABB requirement has been tested.
Put TestStream to work for your organization

We look forward to helping you ensure that your Laboratory and Blood Bank systems are at their best, so you can deliver care with confidence.

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Vedant Health: Your true partner in improving patient care
Testing and validation technology is what we do at Vedant Health. But what’s at the heart of our mission—and always has been—is a passion for helping healthcare organizations save and improve their patients’ lives.

For three decades, Vedant Health has provided quality assurance solutions for organizations around the world. We’re a large but close-knit team, with deep and extensive experience in the testing technology and healthcare worlds. We look forward to talking with you about your quality assurance needs, and how we can help.

Our History of Innovation

1986 We created the first of a new generation of test tools with the award-winning V-TEST product set. The V-TEST innovation continues today under the OpenSTA open-source product.

1996 We started testing healthcare systems and found that the typical test tool and script approach could not handle the complexities of healthcare systems. TestStream and its revolutionary intelligence system launched.

2005 Moving on from validating airline, banking, insurance, government and space-destined systems, we made the commitment to concentrate solely on healthcare.

2014 Vedant Health is reborn, bringing a fresh approach to quality management. TestStream continues to validate healthcare systems throughout the world.