

A few remarks on analyzers: Which end is up?

Troy Galloway, senior director of marketing, Automated Systems, and Eric Olson, vice president, Informatics & eBusiness, of Siemens Healthcare Diagnostics volunteered to respond to several questions about effective and efficient use of automation: front-end, back-end, and in-between. Here are their insights.

MLO: What advances to the front-end of automated systems are in the pipeline today, if any?



Troy Galloway,
senior director of marketing,
Automated Systems

Galloway: Current pre-analytics focus on reducing manual tasks, such as moving tubes between stations, centrifugation, and cap removal. New advances may focus in the areas of further error reduction and sample quality: for example, technologies that guarantee correct identification of a sample to a patient, or that can validate the right test is being performed on the right tube type, or verify the integrity of the sample (volume or interferences such as hemolysis or lipemia) before sending the tube to the analytical engine.

MLO: What advances to the back-end of automated systems will we be seeing in the future? We have come a long way since 2000 when lab automation was warming up. What about the back-end automation has been the most important improvement in the ensuing years? What about it will be the “next big thing”?

Galloway: The most important improvement has been around archival and storage, and providing the right handling, whether it is quick disposal or long-term frozen storage, for the right tubes. So, online refrigerated storage and retrieval systems are becoming more popular. But size, space, and cost are often limiting; finding ways to reduce footprint, optimize space, and manage intelligent, individual tube storage and disposal will be important.

MLO: Between the front end and the back end, what one item that lies in the middle (the “in-between”) has enhanced automated testing most ... and what is coming up that will further enhance this area of an automated system?

Galloway: One of the most important is point-in-space technology so analyzers can connect to automation tracks cost-effectively, with no extra hardware or robotics. This im-

proves the turnaround time for the result because tubes remain on the track, the analyzer can pick up sample quickly, and the tube can move on to the next analyzer, so tube travel and waiting time is greatly reduced. Reducing turnaround times is a key metric for laboratories, as it directly impacts patient care. Coupled with point-in-space is the idea of “tube-centric” tracks that manage tubes individually rather than in racks. Further enhancements can look at optimizing the prioritization of critical samples to even further reduce turnaround-times for STAT samples without compromising the result time for routine samples.

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MLO: How will information technology affect the future of automation?



Eric Olson, vice president,
Informatics & eBusiness,
Siemens Healthcare Diagnostics

Olson: Any discussion about the future of automation is incomplete without considering the impact of IT. Information technology connects the pre-analytical, analytical, and post-analytical phases of automation and provides the human-user interfaces that enable people to cope with the vast amounts of information that automation systems produce. Developments in IT will enable fewer people to manage a greater amount of testing by consolidating

and streamlining data and process management. This will be realized through data-processing engines that automate routine decisions and advanced user interfaces that push relevant, actionable, and intuitive information to the user. Information technology will also provide the data mining and analytics that laboratories need in order to monitor, manage, and optimize their automation lines.

"A" is for analyzers

Lightweight compact hemostasis analyzer

The *STart 4 semi-automated hemostasis analyzer* features a patented method of electro-mechanical clot detection (viscosity-based). This method eliminates interference from lipemic, icteric, or other optically turbid samples or reagents. The analyzer offers programmable and pre-programmed assays with calibration-curve storage; four independently-timed incubation stations; electronically-linked multiple pipettor; 40-character liquid crystal display; and an internal thermal printer. The lightweight, compact size makes this product ideal for low- to medium-volume batch testing or as a back-up to optical clot-detection systems.

Diagnostica Stago

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Hepatitis B added to test menu

The *ARCHITECT CORE* automated hepatitis B test for use on the *ARCHITECT 1 2000* and *I 2000SR* immunoassay testing instruments is a chemiluminescent microparticle immunoassay (CMIA) for the qualitative detection of IgG and IgM antibodies to hepatitis B core antigen (anti-HBc) in human adult and pediatric serum and plasma, and neonatal serum.

It is intended as an aid in diagnosis of acute, chronic, or resolved hepatitis B virus (HBV) infection in conjunction with other lab results and clinical information. This immunoassay builds upon the current *ARCHITECT* menu of hepatitis A, B, and C diagnostic tests.

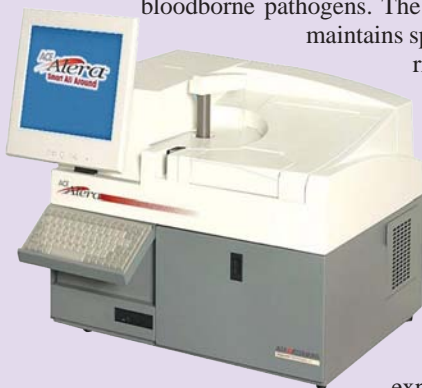


Abbott Diagnostics

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Low-maintenance compact analyzer

The compact *ACE Alera* clinical chemistry system's patented closed-tube sampling ensures safety by minimizing the risk of bloodborne pathogens. The refrigerated compartment maintains specimen and reagent integrity and eliminates overnight reagent transfer. Forty test reagents can be stored onboard at any time. The system can process up to 165 photometric tests and up to 120 ISE tests per hour. The software identifies and tracks sample, patients, and reagent details (including expiration date and remaining reagent), and stores up to 1,000 patient records and 5,000 requisitions.



Alfa Wassermann

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Hand-held analyzer with no sample prep

This *Claros System* immunoassay analyzer — similar in size to an OTC glucose meter — performs quantitative immunoassay blood tests. Due to the complexity of immunoassays, the majority of these tests can only be performed in large laboratories with expensive equipment and trained scientists, and require extensive periods of time for results. This product gives results in 15 minutes, with no sample prep or user intervention; ease-of-use means this system can be used by anyone, anywhere. Proprietary detection, fluid handling, and manufacturing technologies have been combined into a diagnostic system with a single credit-card size cartridge that can yield results for multiple markers simultaneously with a finger stick of whole blood. It is also capable of performing quantitative analysis of blood, serum, urine, and other bodily fluids. The analyzer is wireless, wired, or printer-output capable.

Claros Diagnostics

Visit www.rsleads.com/906ml-186

CLIA-waived POC blood-lead analyzer

The new CLIA-waived point-of-care blood-lead analyzer *LeadCare II* system is an improved, waived version of the original *LeadCare*, used for physicians' office lead testing. *LeadCare* is part of many Childhood Lead Poisoning Prevention Programs. The product's portability and ease of use allow public-health workers to perform the screening where at-risk children receive care. Based on proprietary electrochemical-detection technology, the system includes a small instrument along with single-use sensor strips, which provide a quantitative measurement from a drop of blood in three minutes. Both point-of-care and bench-top lead analyzers are available. The bench-top blood-lead analyzer provides an accurate blood-lead measurement in 90 seconds. In addition, comprehensive lead-monitoring and analysis services are offered.

ESA

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Easy-to-use analyzer with RFID technology

The *EasyRA* is a fully automated, random-access clinical chemistry analyzer that accommodates the diverse needs of a small laboratory. This product offers access to all replaceable components. Its unique slide-out drawer makes maintenance a snap. RFID technology eliminates the need to manually set up reagents. Place the smart reagent wedge anywhere in the reagent area and the analyzer identifies location, number of samples remaining, sample volumes, and expiration dates. The user interface is easy to learn, with minimal training needed. Simple menus and icons guide users through analyzer operation and tasks to be completed. Automated inventory management provides a clear view of the status of all consumables required for operation. The product features 150 tests per hour (>300 with integrated ISE), 24 sample positions, 24 reagents onboard, and more.

Medica Corp.

Visit www.rsleads.com/906ml-189

Random-access multiplex testing

The *BioPlex 2200 System* is a fully automated, random-access multiplex testing platform. The BioPlex 2200 improves workflow with random-access sampling and priority processing. Performing multiplex analysis on the BioPlex 2200 is easy: load a tray of primary tubes and walk away. The system can automatically process up to 100 samples per hour — for a maximum of 2,200 reportable results. First results are available in approximately 20 to 45 minutes (assay dependent), with subsequent patient samples completed approximately every 30 seconds. Intuitive, touch-screen eFlex software allows precise system control and information management. eFlex interfaces with the laboratory information system and direct connectivity solutions for troubleshooting, reportable billing and Internet-based QC programs. The system allows users to order add-on tests from previously processed samples without a patient redraw, create custom test groups, and fine-tune quality control rules.

Bio-Rad

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Measure blood glucose and lactate

The *2300 STAT Plus* is a glucose and lactate analyzer is designed to measure whole blood or plasma simultaneously. The analyzer can also be configured to measure glucose or lactate only. Testing requires only the sensor and reagents for the chemistry needed. The 2300 STAT Plus is designed for a STAT or central lab, and can be used in diabetes evaluation and neonatology/pediatrics, among others. The product is ready to use with simple, safe operation and autocalibration. It can aspirate 25 mL of blood or plasma from a small collection tube, and batch sampling of plasma or serum can be done with the optional 240-position turntable. □

YSI Life Sciences

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Random access and closed tube testing

The *Excyte Mini* combines all the features a lab could want in an automated ESR analyzer, with the ease-of-use and reliability techs need. With 10 positions and half-hour test time, the Excyte Mini performs up to 20 separate tests per hour. Plus, with features like random access and closed tube testing, the Excyte Mini makes sed rates and quality control easier to run, and provides increased safety to laboratory staff.

Vital Diagnostics

Visit www.rleads.com/906ml-192



Full automation for the hemostasis lab

The *ACL AcuStar* is a specialty-test analyzer that offers full automation of highly sensitive immunoassays for the hemostasis lab. Labor-intensive specialty tests that previously required specialized training and up to two hours to perform can now be performed in as little as 25 minutes, with no special training required. This analyzer incorporates chemiluminescence technology. All reagents necessary for testing are packaged in a proprietary ready-to-use cartridge.

Instrumentation Laboratory

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Auto analysis of principal body fluids

COULTER LH 780 hematology analyzers deliver a full complement of automated capabilities. Corrected RBC count with high WBC interference correction automatically ensures accuracy in the presence of interfering substances. Enumeration of NRBCs with every CBC/DIFF is automatic, eliminating the need for additional reagents or reflex testing. Cerebrospinal fluid, serous fluids, and synovial fluids are analyzed automatically.

Beckman Coulter

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Wide offering of testing technologies

A broad range of *ELISA tests* is available along with the DSX (4-plate), and/or DS2 (2-plate) processing systems and newly added menu of automated enteric testing. Also offered by this company is the state-of-the-art *AtheNA Multi-Lyte* and *AIMS testing technology*.

Inverness Medical Professional Diagnostics

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