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RAPIDComm 3.0 Data Management System Enhances Analyzer and Connectivity Communication Capabilities

White Paper

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Abstract

The RAPIDComm® Data Management System was released in 2006 as a solution to the growing need of point-of-care coordinators (POCCs) and laboratory managers for centralized management and standardized testing procedures for their Siemens blood gas analyzers. In 2009, the CLINITEK Status® analyzer was enhanced with automated quality checks (Auto-checks) with the release of the CLINITEK Status®+ analyzer. The introduction of the Connect platform for the CLINITEK Status+ analyzer provided many improvements, including operator and QC lock-out as well as communication choices of wireless or hard-wired networks and HL7 or POCT1-A2 protocols. These connectivity enhancements are expected to increase the demand for the CLINITEK Status® Connect analyzer to be managed by POC information technology.

The POCT1-A2 POC connectivity standard, as implemented in the CLINITEK Status Connect System, supports operator list downloads, remote device configuration, and remote control, in addition to patient and QC results reporting. The RAPIDComm v3.0 system works with the CLINITEK Status Connect System's communication protocols to offer automatic operator list updates and downloads, triggered by changes in operator credentials and recertification dates. These features, when coupled with the RAPIDComm application's ability to automatically recertify operators on the basis of successful patient and QC tests, allow hands-off management of operator recertification at the analyzer, ensuring that only certified operators operate the system.

The ability to request and download configuration settings to the CLINITEK Status Connect System allows a POCC to configure one analyzer and then, at the RAPIDComm application, to instantly "copy and paste" the configuration settings to all analyzers or a subset of the analyzers.

While the POCT1-A2 protocol relies upon a robust standard network protocol, loss of connection can occur through network outages or when operators power-off analyzers. The RAPIDComm v3.0 system constantly monitors the status of all analyzer connections and provides a warning indicator regardless of the RAPIDComm function being accessed.

The RAPIDComm v3.0 application also offers many new features for Siemens blood gas instrument users, including audit trail reporting, analyzer reagent and control material reports, and the ability to view and navigate RAPIDLab 1200 and RAPIDPoint 400 and 405 blood gas analyzer screens from any location where there is a RAPIDComm client. The latter feature allows a POCC to perform any task (other than running a patient sample) from a remote location, greatly assisting in diagnosing analyzer and operator problems.

Future releases of the RAPIDComm* data management system will provide support for Siemens DCA Vantage* and other Siemens POC analyzers in the future. The RAPIDComm system's easy-to-use navigational design, coupled with the ability to create separate views of the application for each user, allows users to see only data from, and control the configuration of, analyzers in their purview, keeping the application as simple as possible.

In conclusion, POCCs and laboratory managers have been asking for improved security, greater connectivity and better workflow. The RAPIDComm v3.0 data management system allows them to oversee remote blood gas and urinalysis systems, operator proficiency, and compliance and QC management without spending hours traveling throughout their healthcare institution or network. Overall, the features of the CLINITEK Status Connect System and the RAPIDLab and RAPIDPoint blood gas systems, when coupled to the RAPIDComm v3.0 data manager, are expected to reduce liability and allow greater control of POC operations.

* In development

Background

The vision of Siemens Healthcare Diagnostics is to provide clinicians with point-of-care solutions—not just the in vitro diagnostics analyzers and assays, but the right "package" for them to address their point-of-care testing needs. Central to providing the right package is the question of how best to manage the workflow of point-of-care testing. Medical institutions have many different ways of achieving connectivity; the right point-of-care solutions must accommodate these different connectivity scenarios.

With the RAPIDComm Data Management System, Siemens continues to enhance its market position in blood gas data management, for which RAPIDComm is positioned today, but broadens this position and evolves the RAPIDComm program to a point-of-care informatics solution. Specifically, with version 3.0, the RAPIDComm program now supports the placements and growth of the new urinalysis CLINITEK Status Connect systems in the hospital point-of-care segment. In hospitals, there is still resistance to letting tests migrate from the central lab to the point of care. This migration often means a loss of control to the central lab—but an appropriate data management solution can restore this control. Similarly, conversion from visual read to instrument testing for urinalysis procedures requires a level of standardization that increases documentation and quality assurance responsibilities. The RAPIDComm v3.0 system provides comprehensive and efficient control for Siemens point-of-care testing—both blood gas and urinalysis—throughout the institution.

Materials and Methods

Numerous focus groups and customer forums were conducted in an effort to solicit feedback and direction to guide Siemens' developmental resources in an effort to provide a connectivity solution that meets the hospital point-of-care environment requirements. Participants in these forums included point-of-care coordinators and laboratory managers responsible for both blood gas and urinalysis applications in decentralized testing locations.

Results

RAPIDComm v3.0 system software was designed to expand Siemens' connectivity platform beyond blood gas and to offer a connectivity solution for other Siemens point-of-care applications, namely, the CLINITEK Status Connect Urinalysis System. From a hospital point-of-care perspective, the primary application drivers of the RAPIDComm v3.0 system for both urinalysis and blood gas will be presented.

RAPIDComm v3.0 and Urinalysis

One of the key aspects in managing multiple point-of-care systems is the confidence in knowing that decentralized analyzers are in a fully functional state. When connected to RAPIDComm, CLINITEK Status Connect systems can be monitored to ensure that the systems are online and working properly—from any location within the hospital environment (Figure 1). A variety of "hard-wired" or wireless communication choices are available to connect with the hospital network using the universally accepted POCT1-A2 protocol.

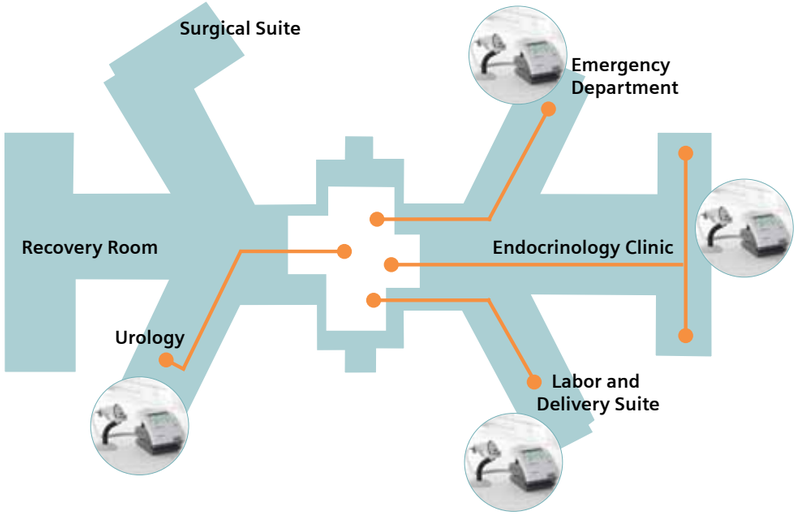

Figure 1. Hospital-wide connectivity for CLINITEK Status Connect systems.

Further, remote monitoring of decentralized urinalysis analyzers is both easy and comprehensive, as seen in the Device Status Summary screen (Figure 2). Here, one is able to monitor the performance of all CLINITEK Status urinalysis analyzers in real time, for a proactive response to any issue that may occur. A concise, color-coded summary report provides an at-a-glance view of all connected urinalysis systems.

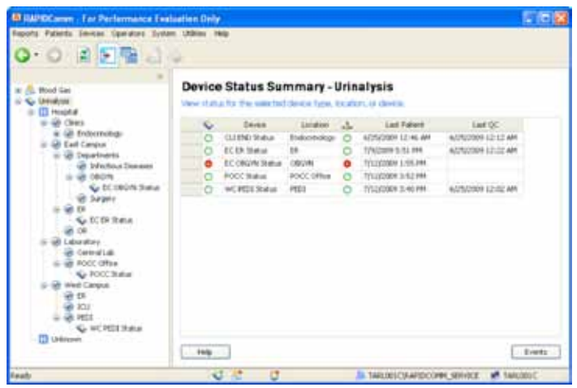

Figure 2. Device Status Summary—Urinalysis

Critical to the point-of-care environment is the ability to manage all of the potential operators who may have access to the urinalysis instrumentation wherever the instruments may be located in a hospital. To this end, RAPIDComm plays a pivotal role in managing urinalysis point-of-care testing efficiently. Lists of operators who are assigned to and authorized to run specific CLINITEK Status Connect systems in certain locations are downloaded either manually or automatically. An unlimited number of operators may be defined in the RAPIDComm database for Siemens blood gas and urinalysis testing (Figure 3) and efficiently managed by a point-of-care coordinator from a single location.

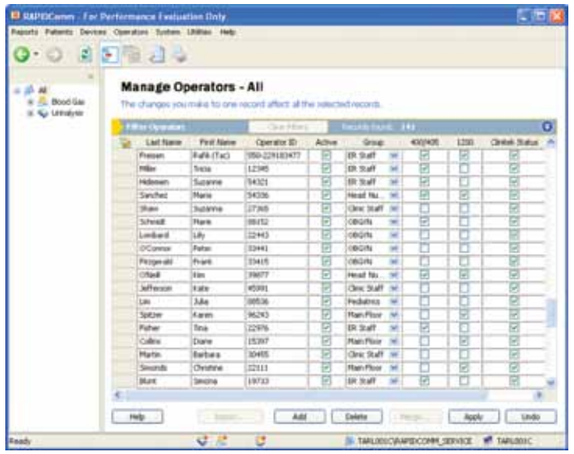

Figure 3. Operator Management screen.

Similarly, if an operator fails to complete the requirements necessary to extend certification, the RAPIDComm v3.0 system will automatically remove this operator from the download list (Figure 4). The uncertified operator will then be locked out of performing any patient tests on any of the analyzers to which he or she was assigned until he or she has been recertified. These operator certification requirements are defined at RAPIDComm and are fully customizable.

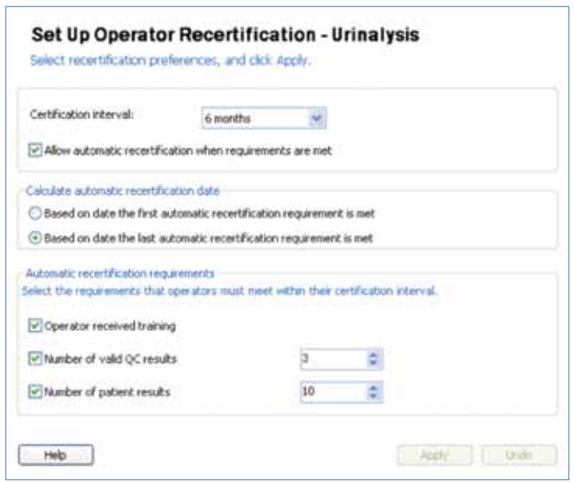

Figure 4. Operator Recertification Setup screen.

RAPIDComm v3.0 and Blood Gas

Two key enhancements for Siemens blood gas testing with the RAPIDComm v3.0 system include the remote analyzer viewer capability and the ability to review and monitor all patient-related changes and operator sign-in records through an audit trail report.

Remote Viewer Capability

Key to any point-of-care coordinator or laboratory manager is the ability to monitor and control remote analyzers from a central location. Simply by accessing the Device Link tab highlighted in Figure 5, a manager will have access to a "live" analyzer connection with the actual remote viewer capability of the analyzer screen on the RAPIDComm monitor (Figure 6). This simplifies troubleshooting and enables real-time monitoring and control of remote blood gas systems.

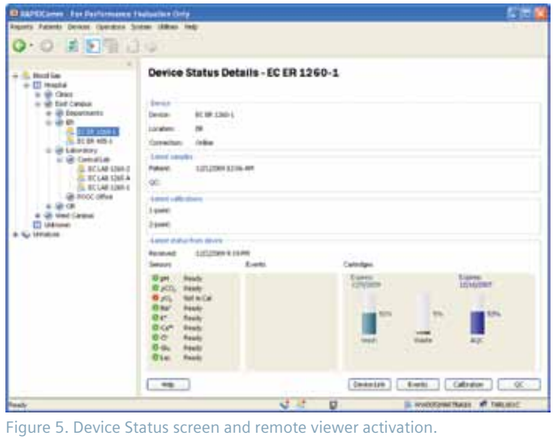

Figure 5. Device Status screen and remote viewer activation.

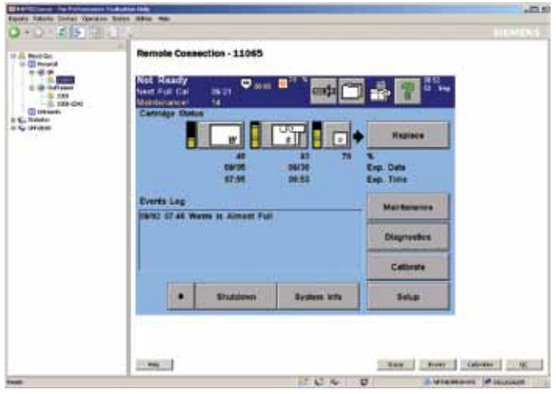

Figure 6. RAPIDComm remote viewing capability.

Audit Trail Reporting

From a regulatory perspective, the ability to view, monitor, and audit all patient-related records and operator sign-ins by accessing the Audit Trail Reports is especially pertinent for the active management of point-of-care devices (Figure 7). Records can be filtered in a variety of ways—by date range, record type, and action—and this particular functionality is pertinent to both the blood gas systems and the urinalysis CLINITEK Status Connect systems.

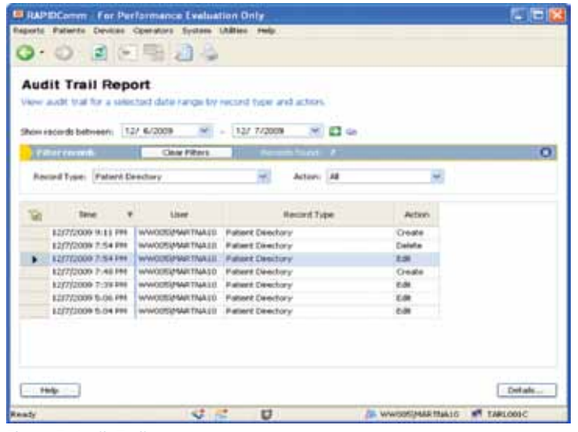

Figure 7. Audit Trail report screen.

Conclusions

As more and more patient testing is performed at decentralized sites, point-of-care coordinators and laboratory managers look for greater connectivity, better workflow, and improved security for their point-of-care devices. The RAPIDComm Data Management System allows them to oversee remote blood gas and urinalysis systems and to manage operator proficiency, compliance, and QC management without spending hours walking throughout their healthcare institution or hospital network.

The RAPIDComm v3.0 system for both blood gas and urinalysis offers these key enhancements:

- Remote device configuration (CLINITEK Status Connect systems) and control
- Operator and QC lock-out capability
- Automatic operator list updates and downloads
- Remote viewer capability (blood gas systems)
- Audit trail reporting