Quantu**M**
Informatics

Working in harmony with your Hospital Information System to revolutionize Real-Time patient safety.

*Spectrum**M**edical*

Active Patient Safety Strategies, QA and QI

Quantum Informatics is an all-encompassing patient safety system for the complex high acuity space focused on patient clinician connectivity in the I.C.U. and the O.R.

Quantum Informatics revolutionizes patient clinician connectivity in the high acuity space with a patient-safety Informatics Platform that empowers the front-line clinical staff with a range of capabilities that can improve Patient Care, Patient Outcomes and Patient Safety. Of equal importance is the necessity to maintain usability within a complex space and therefore, Quantum Informatics philosophy can be understood in a simple four stage process.
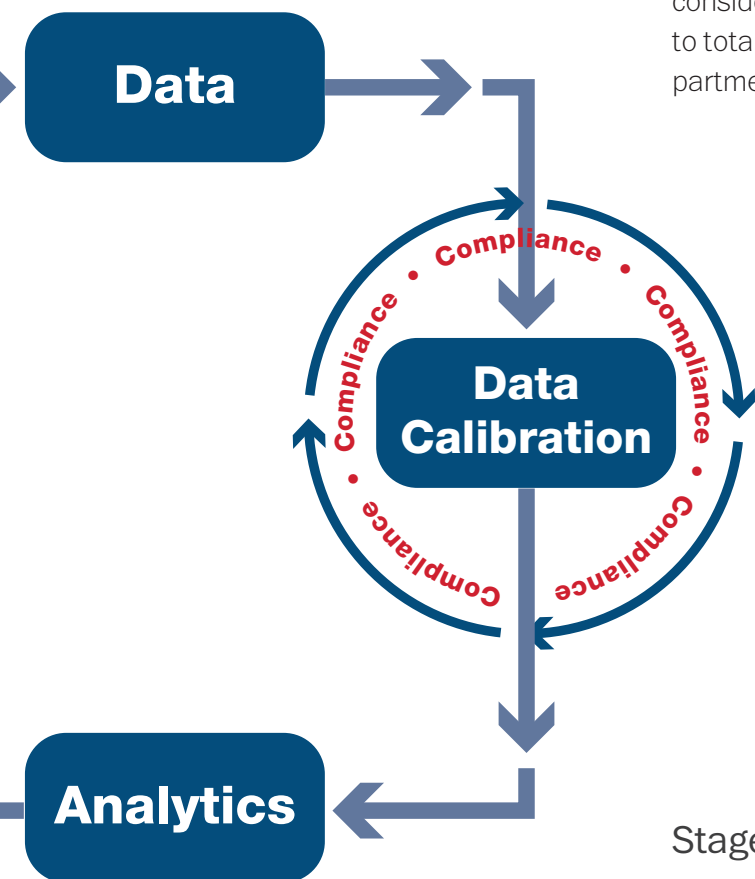
Stage 1

At the heart of the Quantum Informatics is the seamless connectivity to data, and to ensure seamless connectivity, Quantum Informatics integrates with Quantum Workstations, 3rd Party Gateway Servers, Hospital Information Systems and a wide range of Patient Physiologic Monitors in the O.R. and I.C.U. setting.

Stage 4

An active Patient Safety Strategy is a significant new development within the Quantum Informatics Technology. Within this system the patient is continuously monitored against several deployed best practice and evidence-based protocols that can communicate non-compliance via a central display system and physician alert systems. This system allows active QA/QI goals to become real-time clinical practice.
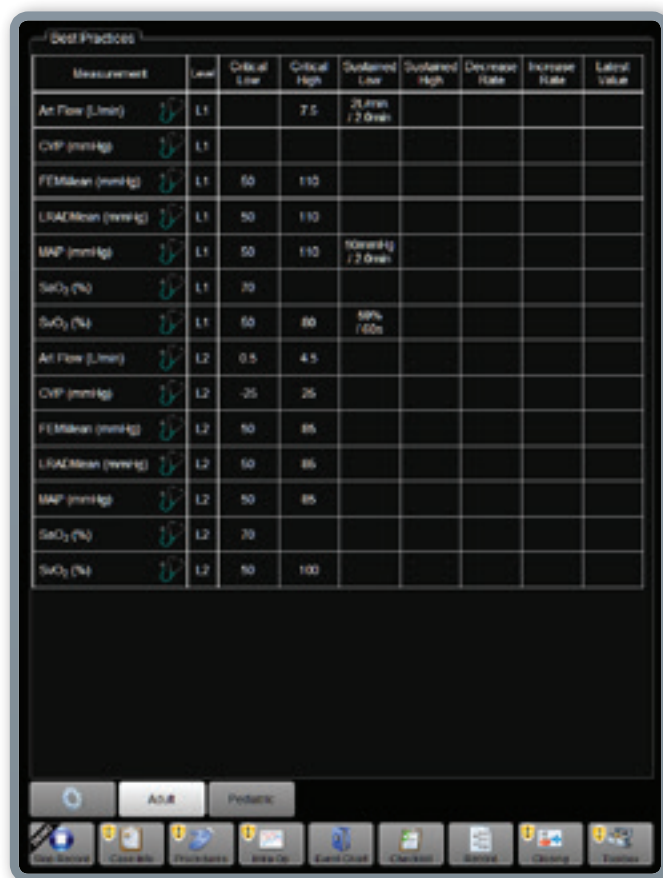
Stage 2

Unique to the Quantum Informatics technology is its ability to report QA indexes for compliance to hospital objectives encapsulated within the active Patient Safety System. Compliance is considered a function of time within Quality Objectives compared to total time care is provided. QA indexes can be broad based departmental index's or more granular segments of time and team.

Stage 3

The use of analytics is an essential element in the QA/QI improvement process and wholly dependent on having access to clinical data for both large patient populations and discreet data for individual patients. To support the QA/QI process the Quantum Informatics technology facilitates the transfer of clinical interventions and diagnostic data to the VISON server SQL database, where a wide range of reporting tools can be used for "post-op" investigation and the continuous improvement of the active Patient Safety System.

Active Patient Safety System

The Compliance, Complications, and Check Lists applications combine clinical best practice and evidence-based protocols into a real-time Patient Safety System that supports the consistent delivery of quality and enhanced patient safety.

Compliance

The Best Practice app is an integral part of Quantum's active Patient Safety System which supports the real-time deployment of a bedside patient specific surveillance profile. Multiple surveillance profiles can be created within a hospital and stored within the Quantum Informatics System. Furthermore, clinicians with system privileges can make changes to a surveillance profile in real time to further enhance individual care strategies and **reduce alarm fatigue**.
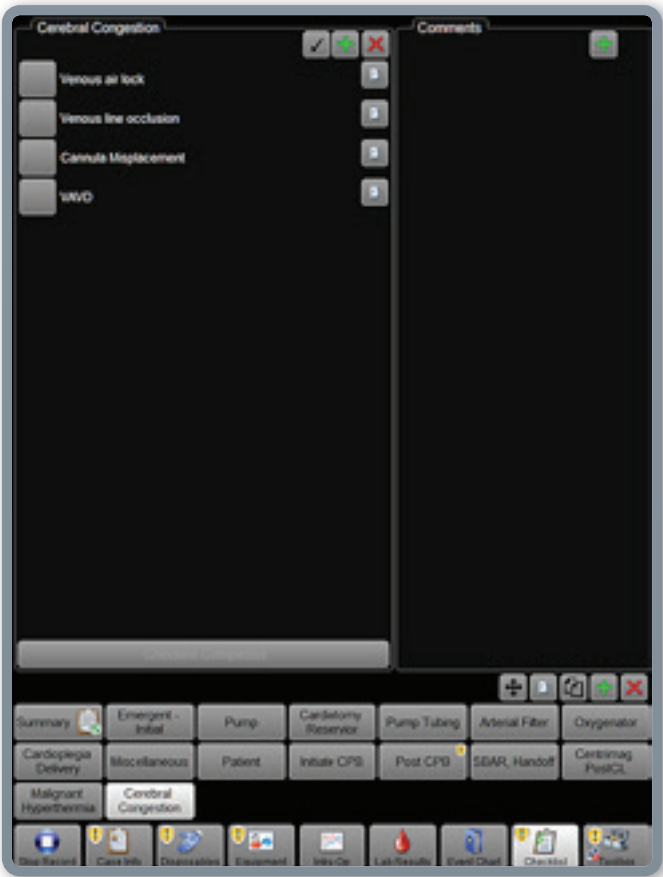
Creating surveillance profiles is a simple process in which real-time physiological data and discreet blood gas data is combined with a specific alerting strategy to create an individual surveillance profile. Alerting parameters can be configured individually or in combination using high/low limits, sustained limits or percentage rates of change limits.

Complications

The Complications application provides a real-time capability that combines the surveillance of multiple information feeds with a range of complication algorithms. When activated the complication algorithm generates a Complication Alert which is supported by a pre-agreed Complication Response.

Complication Specific Algorithms and a Complication Response are easily configured using a "decision tree" format or a check list. Complication alerts can be triggered both automatically via the active Patient Safety System and manually by the clinician. In both cases the clinician gains access to the pre-configured Complication Response. Furthermore, the alert is communicated to all active participants within the Clinician Alert System.

Checklists

A Check List application within Quantum's active Patient Safety System supports the creation of multiple check list formats and their real-time deployment to the bedside. Check lists can be configured to be triggered by any number of specific event types such as a complication alert, patient hand-off etc. Furthermore, check list functionality can be time-synchronised with a change of shift or current rounding practice.

Critical Care Scoring

Patient Safety Technologies, revolutionizing real-time clinician patient connectivity in the I.C.U. and O.R.

The Quantum Informatics Critical Care Scoring technology has been designed to support instant access to a highly visual representation of patient status and then to alert the clinical team via the Quantum Informatics' system when a patient status becomes critical.

At the heart of the Critical Care Scoring functionality is the development of a hospital configured scoring system that's specific to a physiologic system such as Renal, Respiratory, Cardiac etc. Analysing data at the system level allows the instant summary of multiple data points to both speed response and patient triage.

Initial system configuration and subsequent modification is both easy and only possible with Admin level access. Real-time data combined with ADT feeds from the Hospital Management System facilitates the active calculation of a patient system status. Additionally, ADT feeds allow the introduction of pre-specified patient weighting factors into the system scoring calculation.

Custom Dashboards for the I.C.U. and O.R.

Custom dashboards are used by the clinical team to visualize data that is critical to clinical practice and patient safety. Dashboards have been used in the operating room to create real-time custom views and clinical decision trees relevant t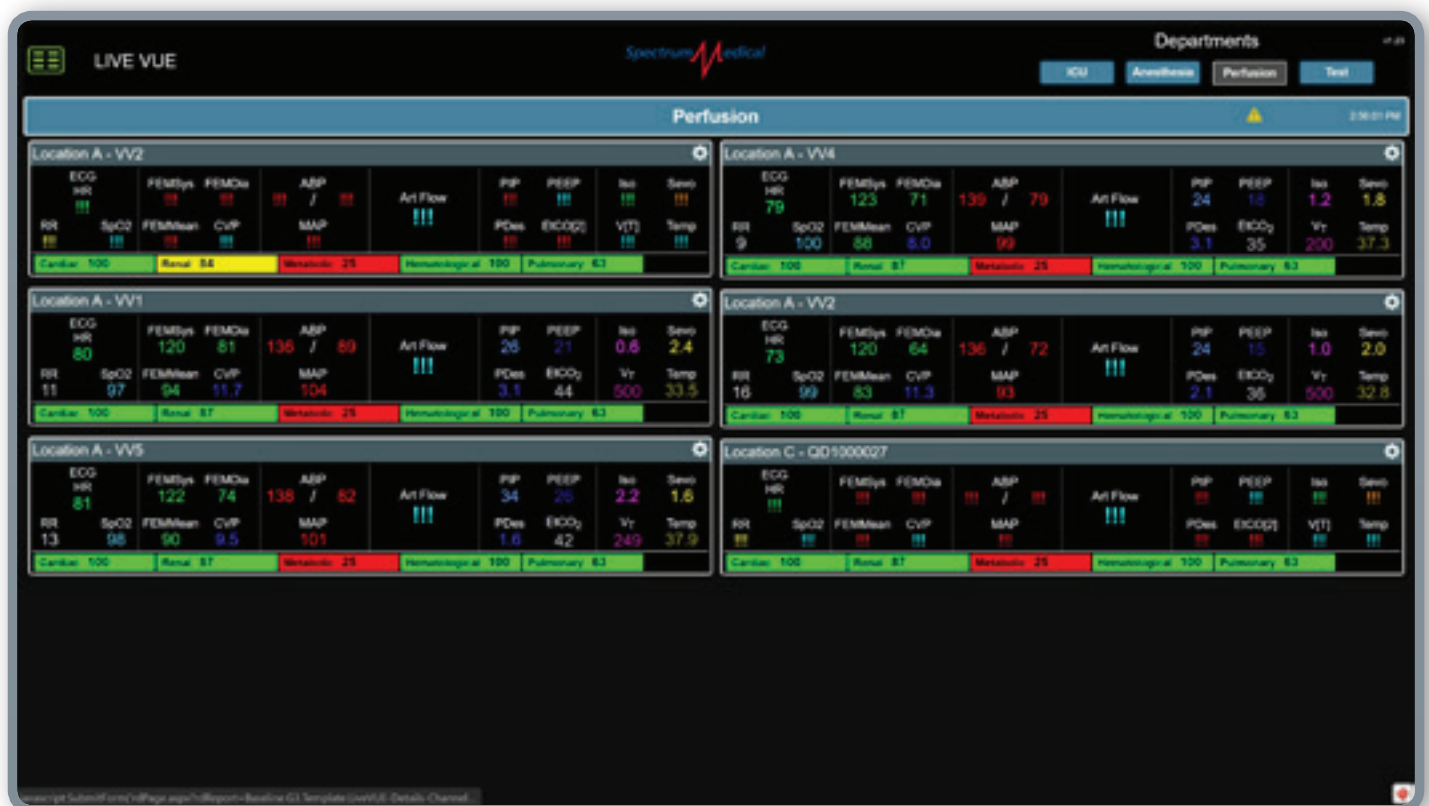o the surgical procedure. Dashboards have also been used in the I.C.U. to allow clinical teams to monitor patients and share data to multiple clinicians to support real-time response to real-time adverse events. These dashboards can consists of live streaming data from 1st and 3rd party devices, ADT. Labs and information from the HIS.

Centralized & Remote Tele-Health and Integrated Alerting

With the seamless integration of "multiple information feeds" and the intuitive input of ADT data, Spectrum Medical is committed to maximising patient safety with real-time responses to real-time adverse events.

Quantum Informatics LIVE VUE is the name given to the software system designed to visualize real-time clinical information in both graphical and textual formats to clinicians within the clinical setting or from a remote location. LIVE VUE will provide the clinical team with a "wide area, real-time perspective" of all patients within the care setting. This presentation of data is further enhanced with the integration of system alerts associated with the deployed active Patient Safety System.
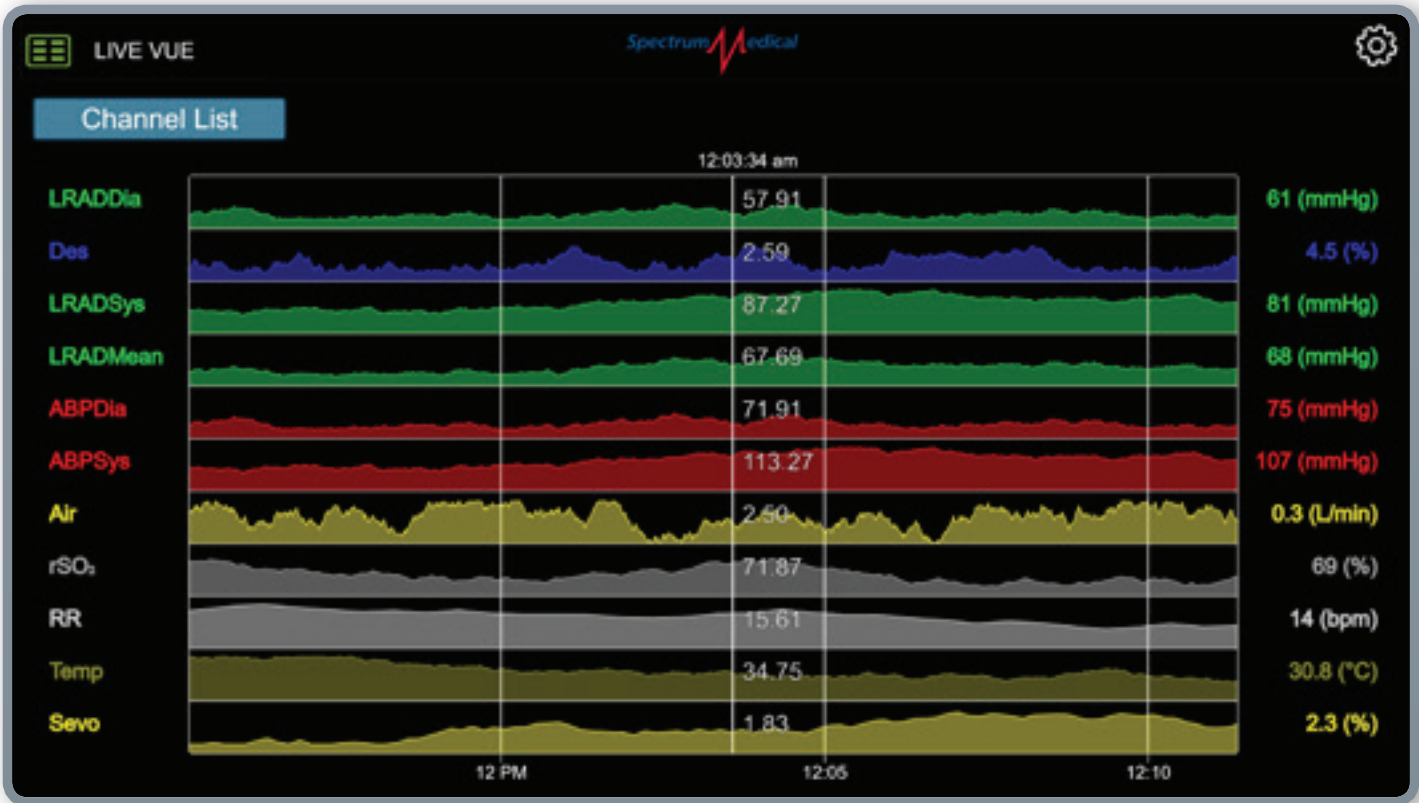
System alerts for Complications, Compliance, Critical Care Scoring and Checklist, if active, will be communicated to the summary information screen and to the clinician personnel comms device in real-time.

Systems

Access to patient specific granular trending information is made possible by selecting a patient displayed in the LIVE VUE interface. This data can include wave forms, trending physiologic data, intermittent blood gas data etc. In fact, the presentation of discreet patient data can be further enhanced by extending the exchange of information to include relevant data within the Hospital Information System.

The LIVE VUE interface is also used for the selection and deployment of both surveillance profiles and check lists. The LIVE VUE interface is also used for the individual setting of alerts within an active patient surveillance profile.

System Architecture and H.I.S. Integration (VISION)

The Powerhouse behind Spectrum Medical's Quantum Informatics technology.

About VISION

VISION is a sophisticated server application that is the gateway into Spectrum Medical's Quantum Informatics Technology. VISION automates the system-wide distribution of software upgrades, windows and security updates, a web-based remote access capability plus the management of user passwords and system privileges. VISION will also support integration with Active Directory.

The VISION server application operates on a hospital supplied server and supports two way communication with Hospital Information systems and 3rd party gateway servers using an integrated communications interface engine supplied by MIRTH Inc. In addition to its system management functionality the VISION server application includes a SQL database for the long term storage of data and for the real-time distribution of active patient

data to both LIVE VUE and the clinician deployed active Patient Safety Systems.

Medical Device Connectivity

To ensure the seamless integration of clinical information the Quantum Informatics VISION Server application includes a world leading Medical Device Connectivity solution that can eliminate the need for a 3rd party middle ware solution. The VISION server application can support connectivity to the following systems:

- 3rd Party Gateway Servers (e.g. Philips & GE)
- Direct device connectivity to a range of Physiologic Monitors Ventilators etc.
- Connectivity to middle ware solutions
- Hospital Information Systems (via Mirth)
- The Quantum Workstation Platform

System Analytics & Case Playback

Initially developed to support the training environment as well as Morbidity and Mortality meetings, the Case Playback technology provides the capability to retrospectively replay stored patient data from the VISION SQL database in real-time. Continuous information includes waveforms, trending physiological and blood gas data. Additionally and dependent on H.I.S integration case playback can include case related events such as medication delivery, best practice alerts, personnel activity etc.

System Administration

Spectrum Medical has long recognised that the success of any deployed QA / QI platform is dependent on the maintenance of Physician engagement, which in itself is largely dependent on utility and the ability to introduce system-wide changes quickly.

The day-to-day management of Quantum Informatics is at the physician level. VISION's web interface supports the real-time management of the active Patient Safety System, including, profile creation, profile modification and profile deployment.

Dashboards / Management Reporting

Spectrum Medical recognizes that dashboards and active reporting systems are core to delivering information and clinical analytics across the continuum of healthcare. To deliver this, Spectrum Medical has partnered with LOGI Analytics, a recognized leader in the field of data visualization and data analytics. The LOGI "tool-set" is now a standard module within Quantum Informatics.

Quantum Workstations

The Family of Quantum Workstations for all your ECLS applications

The Quantum Workstation is your gateway into the management of the World's most advanced Perfusion Management System. Highly configurable, integrated software applications (Apps), supported by a unique range of advanced Quantum Modules extend both Perfusion management and Perfusion functionality well beyond today's conventional technologies.

The Quantum Workstation integrates device connectivity to 3rd party physiological monitors for the central display of critical clinical information and, if required, VIPER-EMR generation. The Quantum Workstation system integrates with the Quantum Informatics VISION server, the remote monitoring LIVE VUE technology and the active Patient Safety Systems

Apps can be selected from the Quantum App Store and integrated into the practice workflow to provide the following functionalities:

- Blood Management, the Delivery of Cardiopleagia, Patient Weaning and Initiation

- Patient Ventilation, Gas Blending and Vacuum Management

- Vitals Management and Diagnostic Alarm Settings

Spectrum Medical

UK Headquarters:
Call +44 (0) 1242 650120
enquiries@spectrummedical.com

US Headquarters:
Call 800 265 2331
ussales@spectrummedical.com

ANZ Headquarters:
Call +61 3 9562 8063
Sales.ANZ@spectrummedical.com

www.spectrummedical.com