Insight**IQ**™

Customizable and modular surveillance that prioritizes patients and highlights the most relevant data

Most caregivers would agree that it is more important to "Keep patients out of trouble... rather than getting them out of trouble"

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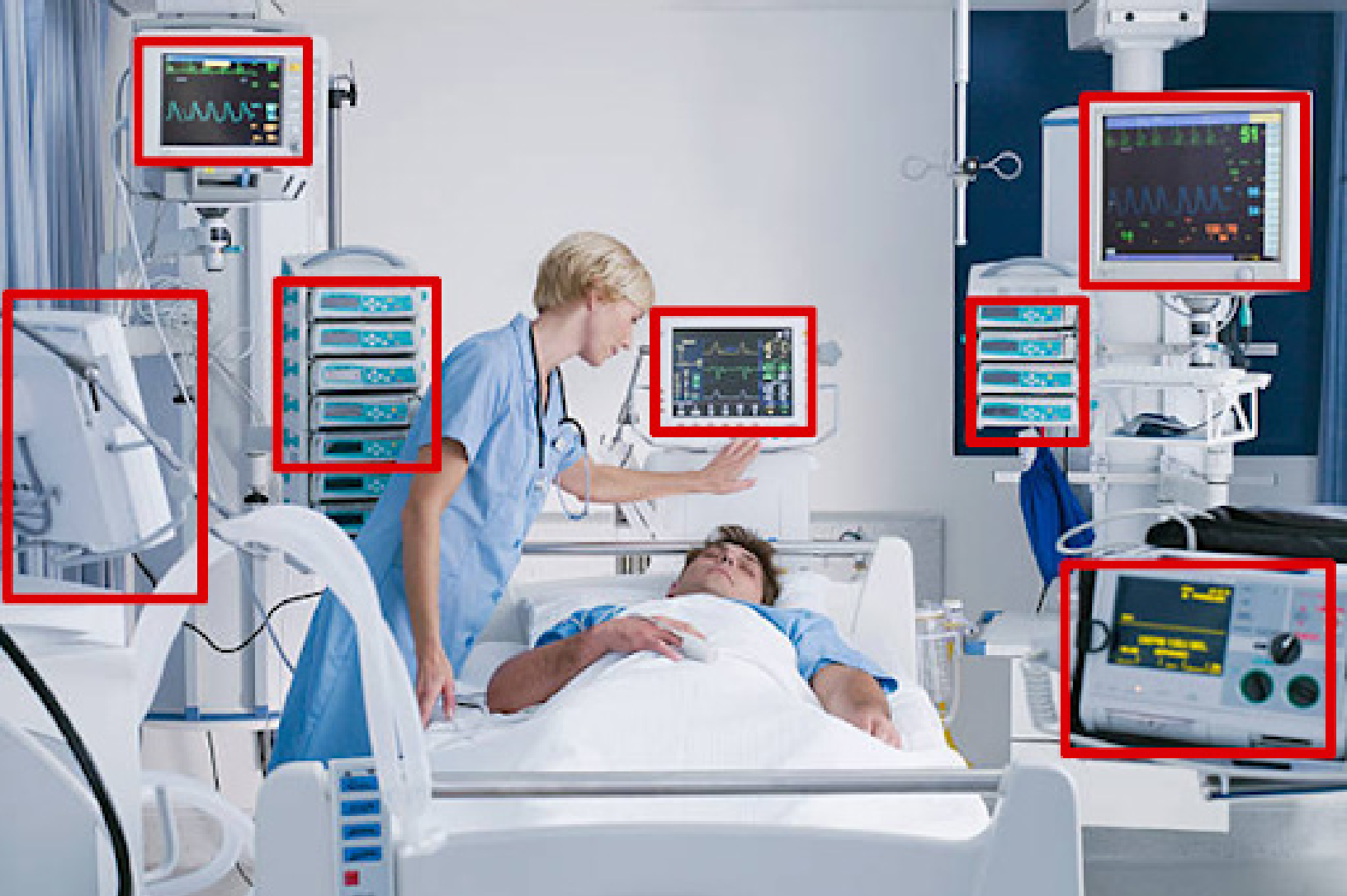
The challenge for healthcare professionals is **managing patient information from multiple sources to provide quality care**. Today, patient data is non-integrated and not readily accessible, which leads to variations in patient care, and difficulties in care team communication. Clinicians need to see the entire picture on time to intervene early and apply the standards of care.

The picture above shows a typical ICU setting. You see the many sources of data that require interaction by the clinician - a ventilator, IV/Medication Infusion pumps, Cardiac/Vital Sign monitors, the EHR, and other devices or systems collecting lab or vital data. **Clinicians must manually traverse the sources to obtain the complete picture of the patient's condition.** This complexity is the challenge we face in delivering high-quality patient care. The lack of the "complete picture" hinders our ability for early detection of at-risk-patients, and can lead to a Failure to Rescue.

Hospitals today do not have streamlined processes to help clinicians identify at-risk patients sooner for earlier intervention. As a result, patient safety is an issue, with unexpected hospital admissions to critical care units occurring more frequently, leading to poorer patient outcomes.

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Missed early detection of clinical conditions is common

85%

of **Cardiac arrests demonstrate a clinical signal up to 8 hours** prior to the event[3]

10%

of **floor patients experience unexpected decompensation**, with half transferred to ICU [1]

8-16%

of hospital admissions develop **in-house Acute Kidney Injuries** (AKI) [16]

Reducing "variability of care" improves outcomes

51%

of **ARDS recognized early** - However, **early management was not instituted in over 50%** of those identified cases [4]

50%

reduction of Ventilator **associated events** are seen within organizations that are **compliant with the standard Ventilator bundle**[6]

10%

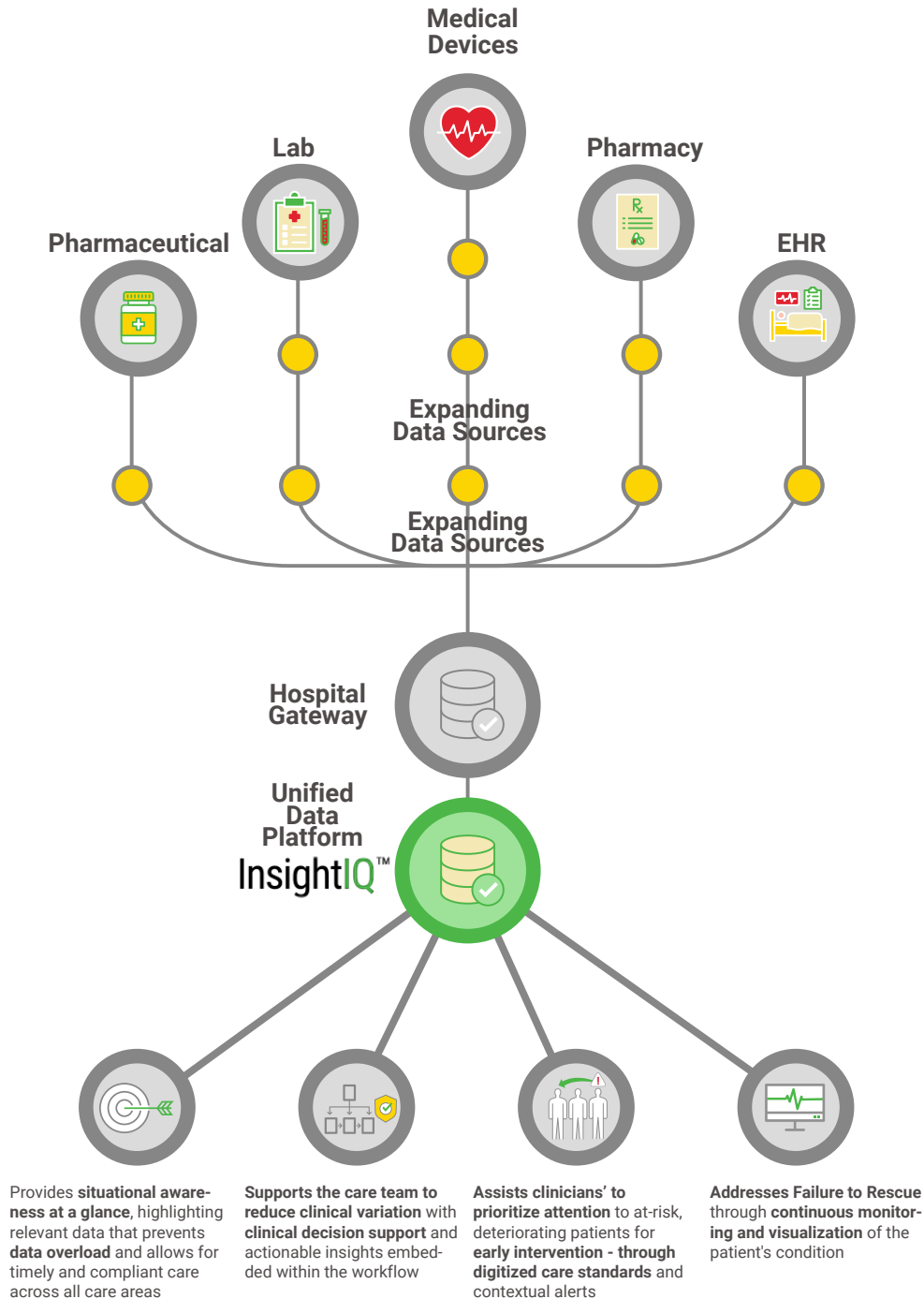is the **national average for compliance** with the CMS mandated sepsis bundle [15]

Introducing InsightIQ™
a continuous smart clinical monitoring solution from DECISIO

Imagine a complete real-time picture of the patient's condition synchronized with other standalone medical devices and clinical applications. Translating data into actionable information allows clinicians to provide **the right care, at the right time, every time for every patient**. A platform with integrated clinical protocols and visibility on pathway compliance to reduce variation in care.

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Critical Condition Surveillance and Actionable Insights

InsightIQ aggregates data from multiple sources, EHR, pharmacy, medical devices, lab, etcetera, into a common unified data platform. From that platform, it provides continuous monitoring and visualization of the patient's condition through unit configurable dashboards at the bedside or remote.

Medical Devices

Lab

Pharmacy

Pharmaceutical

EHR

Expanding Data Sources

Expanding Data Sources

Hospital Gateway

Unified Data Platform

InsightIQ™

Provides **situational awareness at a glance**, highlighting relevant data that prevents **data overload** and allows for timely and compliant care across all care areas

Supports the care team to **reduce clinical variation** with **clinical decision support** and actionable insights embedded within the workflow

Assists clinicians' to **prioritize attention** to at-risk, deteriorating patients for **early intervention - through digitized care standards** and contextual alerts

Addresses Failure to Rescue through **continuous monitoring and visualization** of the patient's condition

The Power of InsightIQ
Digitized Standards of Care and Protocols Across the Care Spectrum

Most organizations have protocols or published standards of care. However, they are typically not digitized into the clinician workflow. The lack of that integration and the lack of near real-time clinical decision support leads to variabilities in the care we provide. Adherence to established protocols is key to delivering quality patient care. If we do not address these challenges, we will continue to see patients with increased length of stay, we will consume limited staff resources due to complications requiring higher levels of care and see costs and mortality rates at a higher level. A single visual platform also helps with compliance with clinical protocols. Research shows that every 10% increase in compliance with recommended care reduces the risk of death by 14%[5].

The power of **InsightIQ** comes from the digitization of those care standards and clinical protocols across multiple care areas - from the Emergency Department, Intensive Care, Maternity, and Rapid Response areas. The bulleted items, as shown below, represent some of those digitized protocols currently available.

Emergency Dept./Stroke

- **Modified-SIRS Sepsis** Screening
- **National Early Warning Score (NEWS)** and customizable alerts
- **Ischemic Stroke Door-to-needle (DTN)** time with visual stroke timer
- **Medication Overlay** Display

Labor and Delivery

- **Maternal Early Warning Score** (MEWS)
- **Gestational hypertension**
- **Postpartum hemorrhage**
- **Modified-SIRS Sepsis** Screening

Intensive Care

- **Ventilator Management** | ARDS and VAP prevention
- **Acute Kidney Injury** prevention and management
- **Modified-SIRS Sepsis Screening**
- **Morphine Milligrams Equivalent** (MME)
- **Medication Overlay** Display
- **Advanced Neuromonitoring** - Pressure Reactivity Index (PRx) - with Customized Neuro display
- **Vasoplegia** (Norepinephrine equivalents)
- **Central-line (CLABSI) and Foley care (CAUTI)**
- **Venous Thromboembolism** (VTE) prevention
- **Hospital Acquired Infections** (HAI)
- **Enhance Capability for Neurology and Traumatic Brain Injury** (TBI)

Floor Management and Rapid Response

- **National Early Warning Score (NEWS)** and customizable alerts
- **Modified-SIRS Sepsis** Screening
- **Morphine Milligrams Equivalent** (MME)
- **Acute Kidney Injury** prevention and management
- **Configurable Rapid Response** display
- **Medication Overlay** Display

InsightIQ does not use proprietary algorithms. We start with peer-reviewed or hospital specific protocols that are easily configurable for your workflows, data values, and thresholds - configurable for each specific unit and patient population.

Continuous Surveillance and Electronic Triaging

With **InsightIQ**, clinicians can monitor patients on a single wall-mounted bedside monitor, workstation on wheels, desktop monitors, easily accessible web browsers, smartphones, or tablets. This ability to gain actionable insights at the point of care is the future of hospital care. **InsightIQ** allows the care team to view selected patients from across the health facility or system, within a specified unit, or for a specific patient.
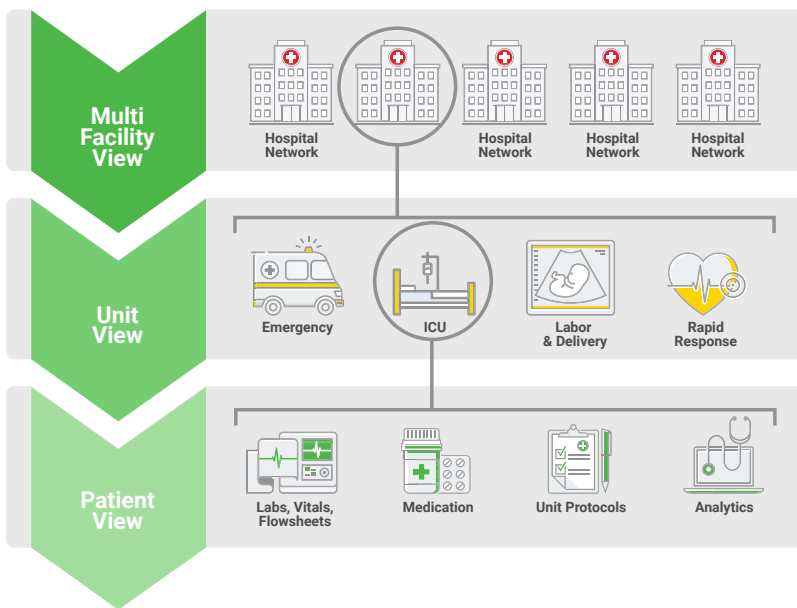
Multi-Facility or Hospital Surveillance
- Real-time monitoring of patients across your network, or in multiple care-settings, for early intervention.

Department or Unit Surveillance View
- Allows clinicians to prioritize patients in need of immediate intervention.
- At handoff between shifts, all patients trending toward risk are identified and ranked for attention.

Single Patient View
Displays continuous clinical data for a selected patient in the unit (ED, ICU or Floor), including:
- Current vital signs, trends and pertinent laboratory values
- Continuously updated score calculations (NEWS, Sepsis Screen, etc.)
- Unit protocols (Vent, Renal, Foley, etc.)
- Hidden insights for early risk detection and role-specific meaningful alerts

Clinicians can filter the displays according to the patient population for that unit allowing for visualization of information for early intervention. Continuous monitoring of patient populations on a single platform triggers rapid response for at-risk patients and can prevent unexpected escalation-of-care.

Department or Unit Surveillance View

The **Unit Surveillance View** is where most Clinicians start. This view shows all patients within the unit, with the individual "tiles" representing a single patient bed. Depending on the care area of the unit, patients can be filtered based on Sepsis, Ventilation, NEWS score, etc. A summary of pertinent clinical data is shown in each of the tiles. That unit care team can configure the specific summary information they would like to present in this view.

From a young age, we instinctively learn to react differently to the colors red, yellow, and green – often at stoplights. **InsightIQ** leverages this intuitive visual process, as such, clinicians can rapidly interpret and respond to color-coded visual insights into the patient's status at-a-glance.

This example of a **15-bed ICU unit** shows four patients with possible Sepsis or Ventilation issues. The patient tiles or beds are highlighted in red and are displayed along the top with additional details. A red color code indicates a specific set of vitals, labs, or other results that are outside of the "normal" thresholds (which can be set or modified by the care team), or specific tasks for a clinical protocol that might be overdue. A yellow color code indicates a patient who might be at-risk for deterioration, or a vital sign significantly trending to an abnormal level, and/or a specific protocol task is rapidly approaching. Using this view, the care team can develop their strategy for rounding - instead of rounding from bed 1 to bed 15, they can focus immediate attention to those patients in most need.   Clicking on any of the tiles will take the clinician to a **detailed view of the Patient's status** and condition.

Characteristic ICU Patient View

The **Patient View** provides a consolidated picture of the patient's condition. Color coding for results, vitals, and protocols (bundles), helps clinicians prioritize their attention to the most critical at-risk patients. As mentioned, yellow and red indicate abnormal or trending values that require immediate intervention by the care team. Using the department's preferred inputs and workflows, **InsightIQ** enables clinicians to drive compliance with unit-specific protocols and reduces avoidable escalation-of-care.

This ability to gain insight within a fraction of a second at the point of care is the future of hospital care. Having actionable information at the right time can help reduce hospital complications, increase compliance with standards of care, and improve outcomes, thereby reducing length of stay and the cost-of-care.
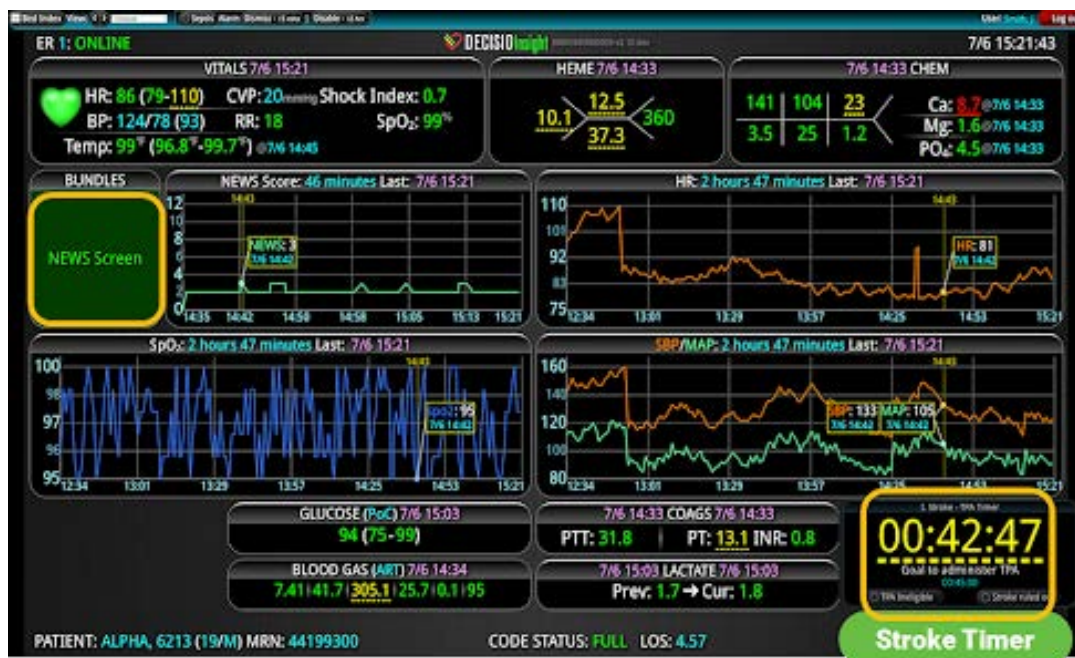
In this **Patient View** example, the patient has been confirmed with a positive Sepsis Screen ("Bundle" being red). Embedded in the visual workflow is the Early Goal Directed (EGDT) overlay (upper left section) that is displayed showing the status of the various tasks required for the Sepsis protocol – e.g., lab draws, medications, etc. Color coding again indicates completed or outstanding tasks, documentation, or actions required of that protocol. The Red color coding of vitals (an indicator of possible sepsis), and the Vent and Foley bundles (protocols) bring attention to additional areas requiring review by the care team for possible interventions.

Configurable Unit-Specific Patient Views

Hospital units require specific clinical data best suited for their patient population. DECISIO works closely with your physicians, nurses, and other clinicians to understand and tailor the dashboards for your specific clinical protocols, workflow, and each unit's specific requirements – presenting data where and how your clinicians can best utilize those insights.

Visual countdown timers, Early Warning Scores, smart alerting, and post-procedure displays based on your hospital guidelines, can lead to earlier recognition of adverse events and prompt intervention, and improved compliance. InsightIQ provides immediate situational awareness allowing clinicians to process critical information without disrupting workflow. In this example of an Emergency Room Patient View, the client has digitized the NEWS score, and has configured the dashboard to utilize a Stroke Timer when those specific conditions present themselves. The NEWS score determines the degree of illness of a patient and prompts critical care intervention.

Characteristic Emergency Unit Patient View

Integrated Medication and Clinical Values

In this Patient View example (below), the Acute Kidney Injury (AKI) – renal bundle turned yellow – according to established protocols indicates possible issues with the patient's current medications and current kidney function status. What triggered this alert was the rise in the patient's Creatinine value by more than 25%. A Creatinine value of 1.3 is typically within a normal range. However, the Creatinine value was 0.8 a few hours earlier in this patient's case. This sudden rise in the Creatinine value alerted the care team for a medication review to prevent further worsening of the kidney function.


Patient View with Medication Review

Point and Click Medication Overlays

Selecting a clinical value or vital from the Patient View shows the vital signs and trends over the past 24 hours, plus a list of active medications. Clicking on one or more medications will instantly plot the administration time of the medication vs. the vital signs trend. Multiple medications can be plotted together on the same graph.

Medication View Overlay

Robust Graphics are a Click Away!

InsightIQ provides the ability to graph various vitals and lab results. Today, the Pressure Reactivity Index (PRx), a surrogate marker for cerebral autoregulation, is a manual, labor-intensive graph process. Creating a PRx graph requires a clinician to manually extract data from the EHR and plot the graph, consuming several hours of a clinician's time daily for a few graphs. **InsightIQ** can provide this graph in accordance with hospital protocols for all patients requiring advanced neuromonitoring.
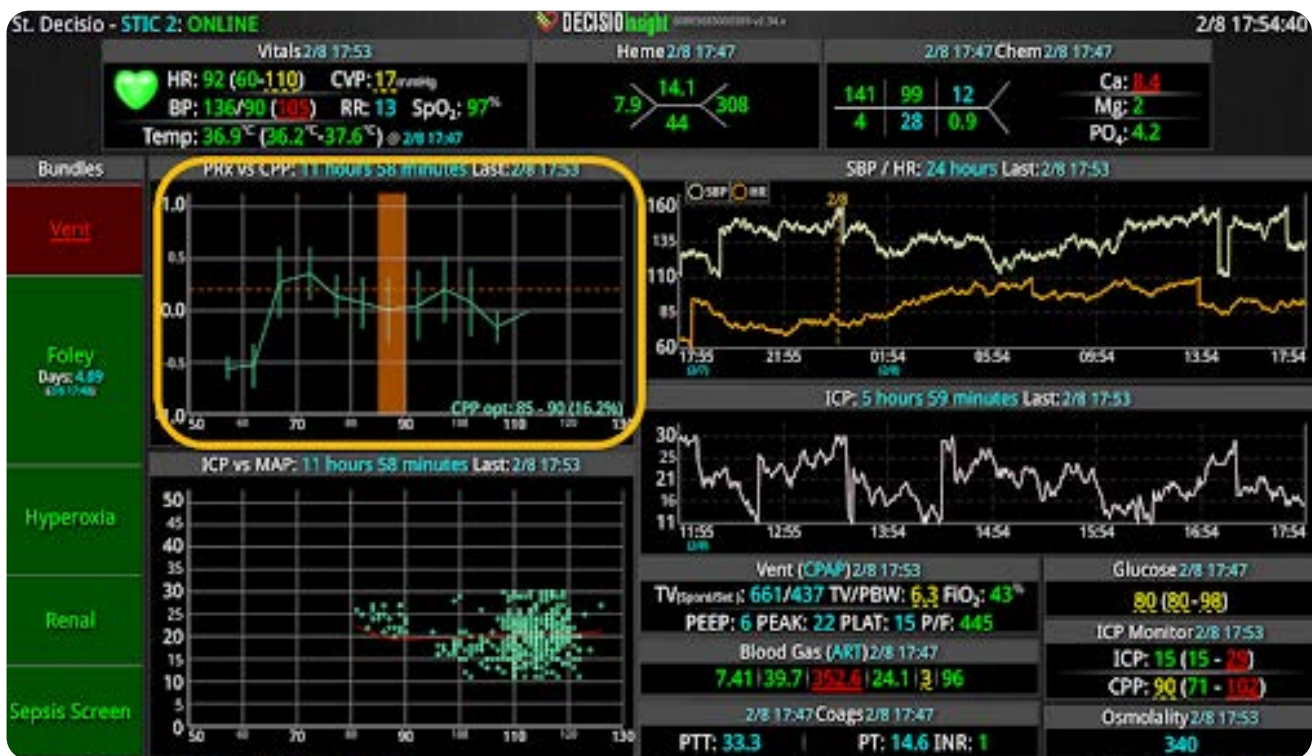
Non-Audible Alerts

Contextual and actionable alerts reduce alert fatigue. Multiple clinical parameters can be combined to create highly specific alerts. Organizations can adjust and set hospital approved thresholds. Alerts are configured with your facility's clinical notification systems, such as smartphones or pagers.

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Peer-Reviewed Published Results

Shown here is a sampling of results published by our clients, in peer-reviewed clinical journals, and represent positive outcomes across all care areas from the ICU to Labor and Delivery, and with rapid response teams. As shown, they have reported significant improvements with specific conditions like Stroke, AKI, and Sepsis, to name a few. Reduction of Length of Stay has shown significant reductions in care costs. Additionally, clients have reported improvements in revenue from improved sepsis documentation or from proper reporting of comorbidities and patient complications.

Using our EnvisionIQ data and analytics platform, clinicians can verify if the care team/ physician has appropriately "documented" the care provided. **EnvisionIQ** highlights for them and billing coders specific patients with conditions and treatments not reflected in the clinical notes – thus allowing for appropriate documentation so the organization can receive the appropriate reimbursement.

Rapid Response

$12M annualized savings realized from reduced LOS in Acute Care Units with an associated **47% reduction of in-hospital mortality** [P1]

Emergency

12% reduction in adjusted mortality rate and **6.5% reduction in LOS** in patients admitted through the ED[P2]

Sepsis

>50% reduction in ICU and hospital LOS from positive sepsis screening[P3] A potential increase of **$3.6M annual revenue** from improved documentation.

Stroke

54% reduction in average Door-to-Needle (DTN) time for medication (tPA) administration.[A1] **300% increase** in patients receiving medication (tPA) within 45 minutes [A1]

Intensive Care

46% decrease in patients ventilated at Tidal Volume > 8 ml/kg.[A2]
23% reduction in overall AKI incidence.[A3]
15% reduction in mortality in patients who had an ICU transfer within 24-hours of hospital ward admission from the ED.[A4]

How we are different from other HCIT tools

So how are we different from other healthcare IT vendors and solutions? First, we enhance the EHR experience. InsightIQ doesn't use proprietary algorithms, but digitizes peer-reviewed or your hospital defined protocols and bundles of care. **InsightIQ** addresses Failure to Rescue through continuous monitoring and visualization of the patient's condition that allows the care team to provide timely escalation of care for patients. **InsightIQ** embeds actionable insights into the visual workflow which assists clinicians to achieve higher levels of compliance - at the bedside - during time-sensitive critical situations. There is no need to log into multiple systems or look for data across multiple sources. **InsightIQ** addresses click fatigue - with a single clinical dashboard, providing situational awareness at-a-glance of the entire patient condition. All alerting is contextual, actionable, and non-audible - designed to reduce fatigue. And the configurable nature of the platform facilitates collaborative improvements to optimize workflow.

From a hospital gateway, **aggregates data** from EHR, medical devices, and other source systems to **provide situational awareness at a glance** - guiding clinicians to those **patients most at risk**

Configurable to your clinical or peer-reviewed protocols, **at the Unit Level,** tailored for your patient population - **Enables Smart Alerting** to changing patient conditions

On-demand visualization of clinical quality compliance and performance metrics for the whole unit or hospital

Addresses click fatigue – with a single clinical dashboard, **providing a quick, contextual understanding** of the entire patient condition

Addresses Failure to Rescue through continuous monitoring and visualization of the patient's condition with timely escalation of care for at-risk patients

Actionable Insights embedded in clinical workflow to drive higher levels of compliance to protocols - **thus reducing variability of care.**

Get The Entire Picture of Care

- **Continuous surveillance**
- **Condition specific clinical decision support**
- **Digitized standards of care configurable for specific protocols**
- **Insight driven workflow with situational awareness**
- **On-demand healthcare analytics**
- **Optimized across all care areas, units, and facilities - from bedside to remote**

Client Published Papers:

P1. Morgan CK et.al. Continuous Cloud-Based Early Warning Score Surveillance to Improve the Safety of Acutely Ill Hospitalized Patients; J Healthc Qual. 2021.
P2. Howard C, et. al. Implementation of automated early warning decision support to detect acute decompensation in the emergency department improves hospital mortality. BMJ Open Qual. 2022.
P3. Jung AD, et al. Sooner is better: use of a real-time automated bedside dashboard improves sepsis care. Journal of Surgical Research. 2018.

Client Published Abstracts:

A1. Computerized Clinical Decision Support System Improves Door-To-Needle Time for Acute Ischemic Stroke.
A2. Howard C et. al. Improving Compliance with Low Tidal Volume/Lung Protective Ventilation with Utilization of a Real-Time, Bedside Surveillance and Early Warning Decision Support System; Abstract CHEST. San Antonio, TX 2018.
A3. Baker J et.al. Acute Kidney Injury Reduction after Implementation of an ICU Visual Clinical Decision Support Tool. Poster American Surgical Association; Napa Valley, CA 2018.

Other Sources:

1. Jones D et. al. U of Melbourne, ISRRS. 2019
2. Brown A et. al. Recognition of the critically ill patient and escalation of therapy. Anesthesia & Intensive Care Medicine 2019.
3. AHA, ACLS Provider Handbook, 2015
5. Shafi S, et. al. Compliance with Recommended Care at Trauma Centers: Association with Patient Outcomes. J Am Coll Surg 2014.
6. Duclos G, et. al. Implementation of an electronic checklist in the ICU: Association with improved outcomes. Anaesth Crit Care Pain Med 2018.
15. Modern Healthcare, Sepsis treatment costs shoot up $1.5 billion for hospitals over three years, March 2019
17. Key 2008 CMQCC Hemorrhage Task Force Survey Findings
18. Creanga A A, Syverson C, Seed K, Callaghan W M. Pregnancy-related mortality in the United States, 2011-2013. Obstet Gynecol. 2017;130(02):366–373

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