Cerner and IBM: making devices intelligent

An innovative asset management solution that improves patient safety through a comprehensive, fully integrated approach to the medical device lifecycle

Highlights:

- Enables seamless integration between the electronic medical record (EMR) and enterprise asset management (EAM) platforms with two-way data exchange

- Manages entire device lifecycle from acquisition to disposal

- Allows clinicians to monitor device maintenance status within the EMR workflow

- Helps reduce the risk of infections caused by medical device cross-contamination

- Creates opportunities to manage all medical device assets in a more cost-effective way

- Leverages the global partnership between IBM and Cerner to offer a proven approach

Hospital-acquired infections (HAIs) are a serious problem for healthcare organizations. These infections are responsible for more than 99,000 deaths annually[1], and nearly 17 percent[2] of these mortalities can be attributed to medical device cross-contamination.

Cross-contamination occurs when ventilators, vitals monitors, endoscopy equipment and other devices are not properly sterilized between patient encounters. It is a conceptually simple problem that is extremely complicated to solve — especially in fast-moving healthcare environments where there is typically no integration between clinical systems and the systems used to track and manage assets.

This is why IBM and Cerner are working together to change the way hospitals manage medical devices. Built on proven platforms, this integrated solution delivers a unified approach to device selection, acquisition, interaction, maintenance and disposal, offering unprecedented visibility of medical devices within the clinical workflow.

Solution overview

The prevalence of HAIs can't be overstated. The Centers for Disease Control and Prevention (CDC) estimate that more than 1.7 million HAIs occur annually in the US healthcare system, which equates to approximately 1 of every 20 hospitalized patients contracting an HAI.[3] If current policies for device management remain unchanged, the results could be devastating. In addition to the loss of life, HAIs are also responsible for annual costs ranging from $28 to $33 billion in the US alone.[3]

One of the reasons why device cross-contamination is so widespread is that hospitals lack a consistent, reliable and fully integrated way to manage device activities. Some facilities use a central supply organization, which is responsible for cleaning and maintaining devices. Other facilities rely on the housekeeping to perform these tasks for certain asset classes. In both cases, actions performed on the device are documented in disparate systems that remain unconnected to the clinical systems healthcare providers use during patient workflows.

The *CareAware*™ Asset Management Solution from Cerner and IBM creates an entirely new way for healthcare organizations to manage the entire medical device lifecycle. It integrates directly with the EMR, enabling real-time bidirectional communication between the EMR and the EAM platform.

By establishing this critical point of connection, the solution allows clinicians to see the status of medical devices within the patient workflow. This makes it easier for everyone on the care management team to ensure that all devices have been properly cleaned, sterilized and maintained before they ever come into contact with a patient. It is especially important for more complex device workflows, such as those for catheterized devices, which may use a combination of disposable supplies and parts that require sterilization.

Full integration also allows clinicians to trigger requests for devices within the EMR simply by scheduling a procedure. When this occurs, the solution makes sure the required equipment or devices are available, have been properly maintained and are ready to use. It also sends alerts if these conditions are not met. In fact, the solution is so tightly integrated that clinicians do not have to change anything about the way they interact with the EMR.

Although many other systems can interface with the EMR (via inbound and outbound HL7 transactions), the *CareAware* Asset Management Solution is the only solution that enables true integration with real-time, two-way information flow. This unique capability also allows the EAM platform to acquire and document device-centric information, such as whether the device is currently online, how long it has been online and whether it requires a firmware update.

The *CareAware* Asset Management Solution involves several components, starting with the *CareAware* connectivity architecture. The Cerner *CareAware iBus*™ is the core of the *CareAware* architecture. It enables plug-and-play connectivity between medical devices and the EMR, in much the same way as a USB port connects peripheral devices to a computer. The *CareAware iBus* effectively ensures that providers can connect medical devices to the EMR quickly and easily.

The solution may also incorporate *Cerner Millennium*™, a person-centric EMR that continues to advance the digitization of individual patient records. *Millennium* offers a rich set of focused application modules that can be integrated into a comprehensive clinical and administrative information management solution. For facilities that do not use *Millennium*, the *CareAware* Asset Management Solution can work with EMR products from many other providers.

The EAM platform for this solution is IBM Maximo® Asset Management, which is designed to control the procurement, operation, maintenance, repair, service and disposal of enterprise assets. For this solution, Maximo can be used to manage the full lifecycle of clinical, biomedical and IT-enabled equipment, along with many other assets. Maximo also supports the inventory, supply chain and human resources processes required to maintain these assets. Key capabilities of the Maximo platform include:

- **HSE integration:** Maximo can integrate health, safety and environment (HSE) processes with asset management. It maps regulatory compliance to assets and associates job plans and work orders to ensure compliance at a significantly lower cost.
- **ECRI integration:** Integration with the Emergency Care Research Institute (ECRI) enables Maximo users to standardize medical equipment and receive medical equipment alerts for hazards and recalls quickly and effectively.
- **Billing and chargeback:** For hospitals that rent equipment or use third-party providers to perform maintenance, Maximo can be configured to provide detailed and accurate billing reports, as well as automatically bill internal customers for asset usage.
- **Scheduling:** Maximo allows planners to create a reliable work schedule and includes tools to seamlessly dispatch assignments to field technicians.

Solution benefits

The *CareAware* Asset Management Solution from Cerner and IBM provides an unprecedented approach to medical device management that encompasses the entire asset lifecycle. Advantages of this solution include:
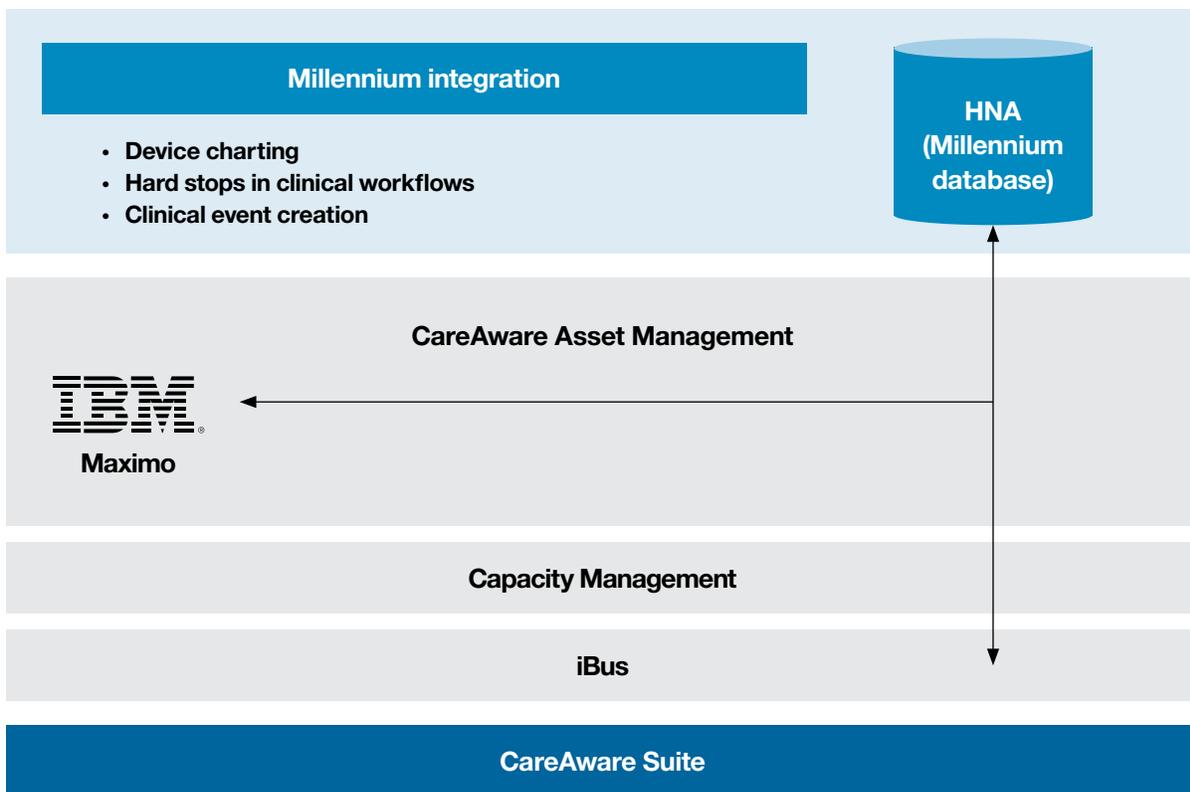
- **Improved safety:** By mitigating or eliminating HAIs caused by cross-contamination of medical devices, this solution improves the overall safety of patients and other caregivers.
- **Superior convenience:** Because the solution integrates seamlessly with the *Cerner Millennium* EMR, clinicians gain the ability to monitor device status, ensure cleaning and sterilization policies are followed, and request new equipment — all without changing how they currently interact with the EMR.
- **Lower costs:** Understanding and managing the relationships between asset inventory and utilization — and how they affect the healthcare organization's operating and capital expenses — helps optimize financial strategies for device procurement and management.

Cerner and IBM: a closer look

IBM and Cerner have built a relationship that enables the two organizations to develop solutions that draw on the strengths of both. The *CareAware* Asset Management Solution is an excellent example of this purposeful collaboration. IBM components of the solution can include:

- **IBM Maximo Asset Management:** This fully integrated EAM solution supports the development of comprehensive programs for maintenance, regardless of whether the maintenance is preventive, predictive, condition-based, routine or unplanned. Implementations of Maximo help reduce asset-related costs and increase asset uptime.
- **IBM Maximo Health, Safety & Environment (HSE) Manager:** This module helps create a safe and efficient operating environment, providing a central application for reporting all incidents spanning work, personnel, safety, health and environmental areas.

Cerner and IBM solution architecture — an integrated approach to Smarter Healthcare

Millennium integration	HNA (Millennium database)
• Device charting • Hard stops in clinical workflows • Clinical event creation	

CareAware Asset Management

IBM Maximo

Capacity Management

iBus

CareAware Suite

The *CareAware* Asset Management Solution from Cerner and IBM gives hospitals and other healthcare organizations a powerful way to manage the medical device lifecycle and reduce the risk of HAIs.

- **IBM Maximo ECRI Integration for Healthcare:** Integration with the ECRI enables Maximo users to align data with the industry-standard device classification system and the ECRI's comprehensive healthcare product safety alerts system.
- **IBM Maximo for Service Providers:** This module helps reduce total cost of ownership and increase profitability by managing assets either through third-party outsourcing or an internally shared services model.
- **IBM Maximo Asset Management Scheduler:** This module enables planners to view all work orders and forecasted activities in a Gantt chart so that they can be grouped logically and scheduled optimally.

Cerner and IBM: rethinking devices

Cerner

Cerner, a premier IBM Business Partner, is a major force in healthcare information management. More than 8,500 facilities worldwide use Cerner solutions. With a dedicated industry focus, Cerner offers powerful solutions that break down traditional barriers between business and clinical operations, helping to eliminate silos of information and make more efficient and effective patient care a core part of the business.

IBM

IBM works with healthcare organizations around the world, enabling them to deploy solutions using existing IT investments and current environments at lower costs, without compromising flexibility and choice. IBM offers a comprehensive portfolio of software, services and hardware for building, maintaining and extending IT-driven solutions in healthcare.

For more information

To learn more about IBM in healthcare, contact your IBM sales rep or visit: **ibm.com**/healthcare

To learn more about Cerner, please visit:
www.cerner.com

1 Centers for Disease Control and Prevention website, 2010.
   www.cdc.gov/hai/

2 Maurno. "Wireless Patient Tracking Can Help Halt Contagion, such as Swine Flu." 2009. The RFID Network. www.rfid.net/news/164-wireless-patient-tracking-can-help-halt-contagion-such-as-the-swineflu

3 Centers for Disease Control and Prevention (CDC) website.
   www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf

Please Recycle

HLS03032-USEN-01