SOLUTION BRIEF

Armis Centrix™ for Medical Device Security | Clinical Engineering

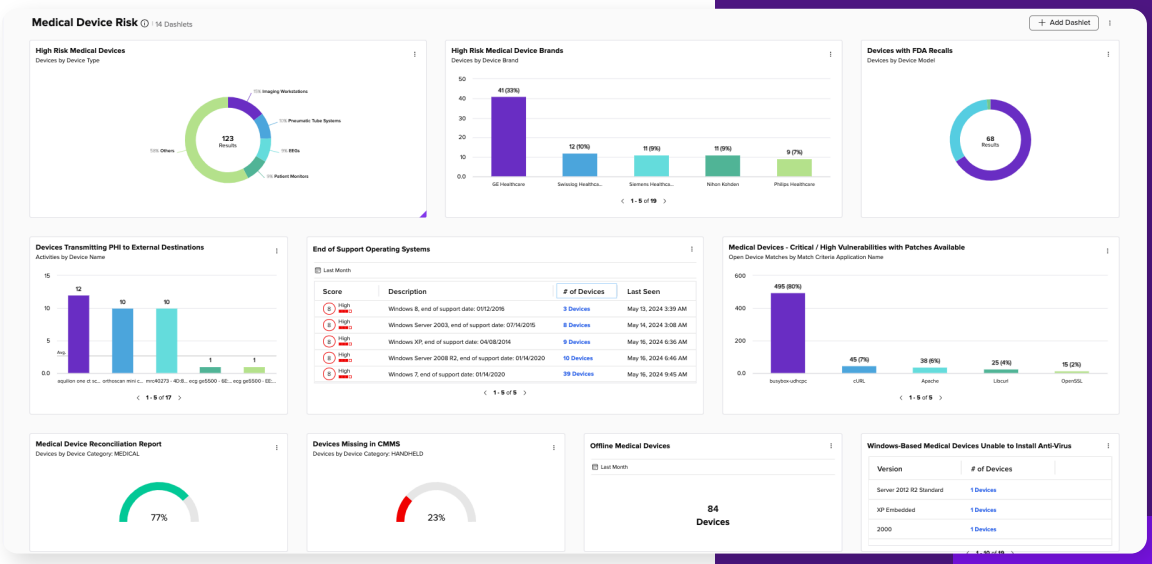
See, Protect, and Manage Your Entire Medical Device Fleet

Clinical Engineers are responsible for ensuring an always-on, essential service of a hospital environment remains uninterrupted and functioning in the most efficient way possible. This requires maintaining and managing a vast ecosystem of medical devices, tracking their usage, and preventively scheduling any maintenance to avoid disrupting essential patient care, or worse causing harm to patients due to faulty or recalled devices. In an environment where healthcare delivery organizations (HDOs) are fielding more cyber attacks than most other industries, any fault or flaw can have an enormous impact on the organization and individual patients alike.

Medical and clinical devices are extremely sensitive, not only due to their specialized nature but also their proximity to patient care. Securing and managing those devices within healthcare environments is essential to ensure the continuity of patient care. Being able to effectively secure these devices maintains all-important uptime, prevents any untimely outages during patient care, and helps cybersecurity teams know these devices are secure and cannot create organizational problems.

Avoid Clinical Interruption and Boost Operational Efficiency – How Armis Helps

- Empower clinical engineers to reduce manual processes and save valuable time
- Consolidated real-time view of every medical device and optimal maintenance windows
- Enhance patient care capacity with effective resource allocation and tracking
- Automatically track FDA recalls and alerts, reducing clinical risk
- Automated view of MDS2 correlation and risk analysis
- Maximize operational efficiency by avoiding interruptions and outages

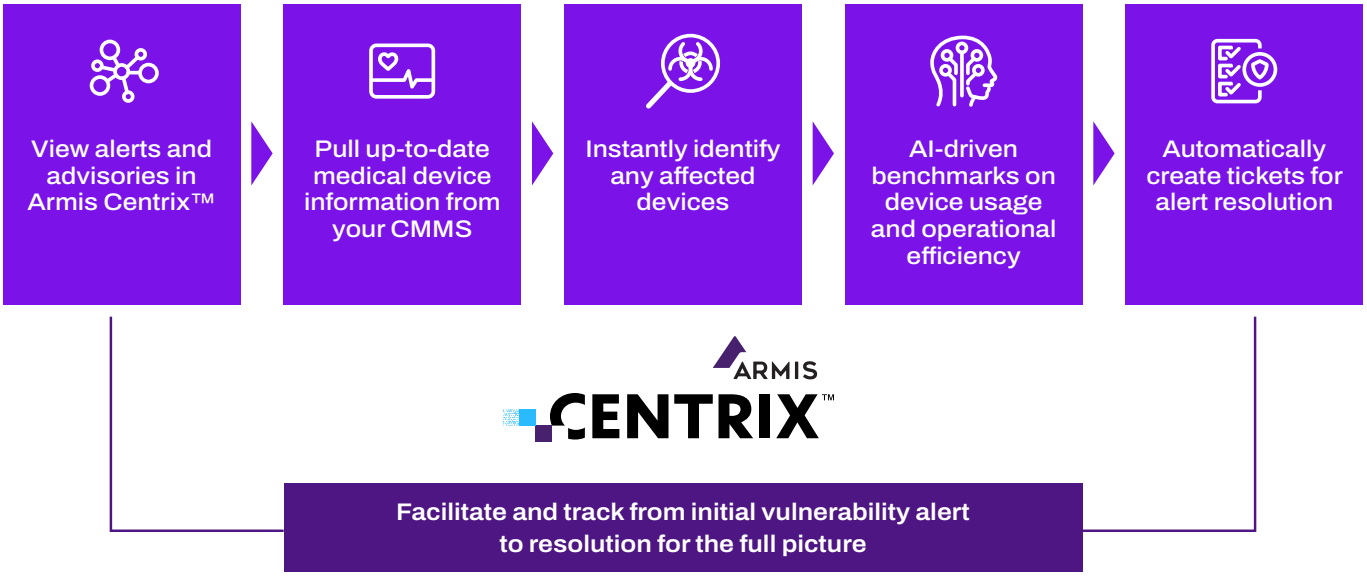


Key Challenges for Clinical Engineers

The risk of a cyber attack in healthcare cannot be overstated. 53% of medical devices have known vulnerabilities that are still exploited. Legacy medical devices prevent healthcare organizations from meeting security and compliance protocols and digital transformation goals. Clinical Engineers are essential in ensuring maximum efficiency and safety of medical devices to avoid impacts or delays to patient care or disruption to hospital operations, which can ultimately cause harm to patients and the wider organization. Any small hitch in the clinical engineering process can delay or disrupt patient care, cause disorder throughout the wider organization, and cost precious work hours. Some of the common challenges and resource-intensive tasks include:

- **Multiple Medical Devices and Systems** - Clinical engineers are responsible for maintaining a vast environment of devices from different manufacturers, varying service requirements, ages, and operating systems. Lack of interoperability between devices and other digital technologies used throughout the organization.
- **No Central View of Devices and Status** - Lack of visibility of which devices require attention and when, when they are in use, where they are located, made worse by incomplete datasets, blocking preventive maintenance and optimized scheduling.
- **Competing Vulnerabilities and Risk Alerts** - Hundreds of alerts on medical devices to wade through requiring manual effort to prioritize and either dismiss or remediate.
- **Disjointed Remediation Process** - No connection with the medical device end-of-life or end-of-support alerts and the work orders required to manage the remediation tasks, leaving an open-ended process with no clarity around resolution.
- **Maintenance Disrupts Clinical Care** - Updates or maintenance to medical devices are difficult to coordinate without interrupting patient care and hospital operations, and clinicians are reluctant to give up necessary devices for engineering tasks.

Optimizing the Clinical Engineering Workflow with Armis



Protect Medical Devices and Patients, Reduce Clinical Interruption with Armis Centrix™

Effective visibility, security, and management of all medical devices requires a holistic, contextualized view of risk. Armis helps your clinical engineers achieve greater workflow efficiency, reduce response time, and shift toward proactive risk reduction and preventive security management. Armis Centrix™ allows you to take into account not only vulnerabilities, but also clinical risks raised due to FDA recalls, and the configuration risks of medical devices, and prioritizes the most critical issues first. With Armis, you can easily view your medical devices, create an automated inventory, identify devices that pose risks to patient care, and collaborate with security teams to secure them.

Armis Centrix™ for Medical Device Security addresses the clinical engineering challenges of the modern healthcare environment, providing a solution that:

- Provides fast time to value for immediate impact
- Increases visibility across the entire medical device fleet
- Discovers elusive medical devices without disruption
- Effectively locates any medical device, notes last usage, and utilization trends
- Tracks vulnerable medical devices and provides remediation guidance
- Manages all tasks, work orders, and tickets related to medical devices.

Visibility and Security Across the Entire Medical Fleet

Armis Centrix™ enables you to see and secure all assets across your entire environment.

Clinical Engineering Workflow Efficiency

Save hours per day of manual efforts, remove the barrier of locating devices, and skip straight to device management and operational workflows. Identify what work is required and track efforts to completion.

Device Behavior, Utilization, and Analytics

Armis helps you monitor device behavior, peak activity windows, properties, and location to ensure efficient and proactive Clinical Engineering.

Vulnerability and Threat Monitoring

Armis Centrix™ helps secure the medical devices closest to patient care so they can operate uninterrupted and uncompromised.

FDA Recall and Security Advisories Management

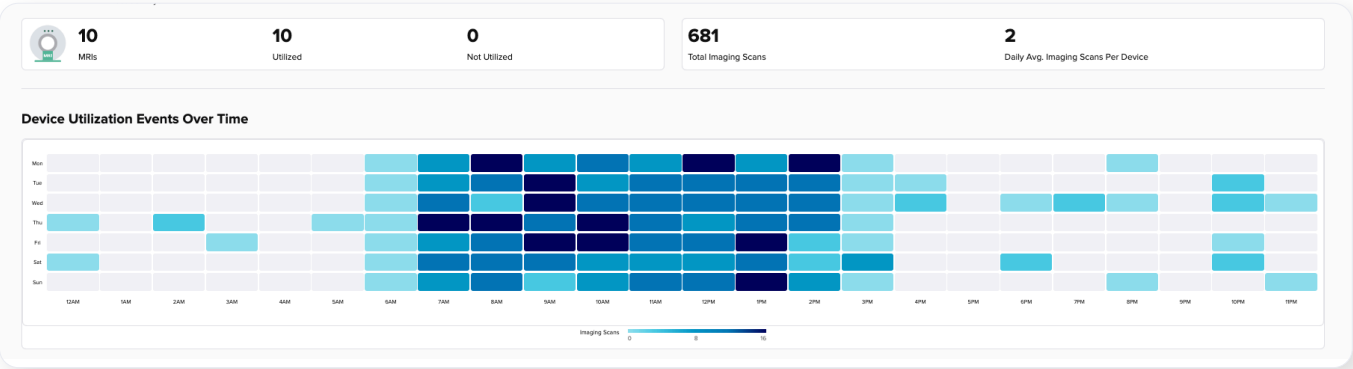
Armis constantly tracks devices and device behavior worldwide and can alert you when external oversight agencies release new guidance for a device. View FDA recall alerts within a dedicated dashboard.

Ensure Safe, Efficient Operations for Clinical Engineers – Armis Use Cases

Avoid Interruptions to Patient Care by Optimizing Medical Device Usage

Armis Centrix™ provides the necessary visibility and contextual data to monitor the usage patterns of clinical devices within every corner of your healthcare environment. This encompasses crucial devices such as MRI machines, patient monitors, infusion pumps, and lab equipment, which experience high demand and usage. By leveraging a complete, unified inventory of every device in the environment and visibility of device utilization and location, Armis supports clinical engineers in effectively allocating resources, determining when a replacement is needed, and ensuring the best use of spend for when it matters most.

Through effective utilization mapping, clinical engineers can pinpoint periods of low activity or identify alternative devices capable of handling an increased load. Optimize scheduling for patient usage and maintenance, minimize downtime during critical periods, and improve your overall patient flow. Track and manage device lifecycles, predict maintenance windows, and ensure you are adequately resourced and able to proactively maintain devices. These enhancements translate into reduced wait times, improved referral services, and enhanced response capabilities.



Simplified Vulnerability Management and Prioritization

Get ahead of routine check-ups and gain a full view of clinical risks on each device. View alerts for risks associated with a given device such as out-of-date operating systems or detect device vulnerabilities. Prioritize mitigation efforts based on asset criticality and clinical risk scoring to focus first efforts on addressing the biggest impacts on patient safety, data confidentiality, and potential disruptions of care. Bridge the gap between cyber risk and its associated clinical risk by conducting a 360 risk assessment.

With Armis Centrix™ for Vulnerability Prioritization and Remediation for Healthcare, you can simplify vulnerability management and prioritization to address the biggest potential interferences in clinical care first and eliminate the time it takes to sort through alerts manually. Avoid any unnecessary delays to care or downtime of medical devices due to lengthy and complex processes.

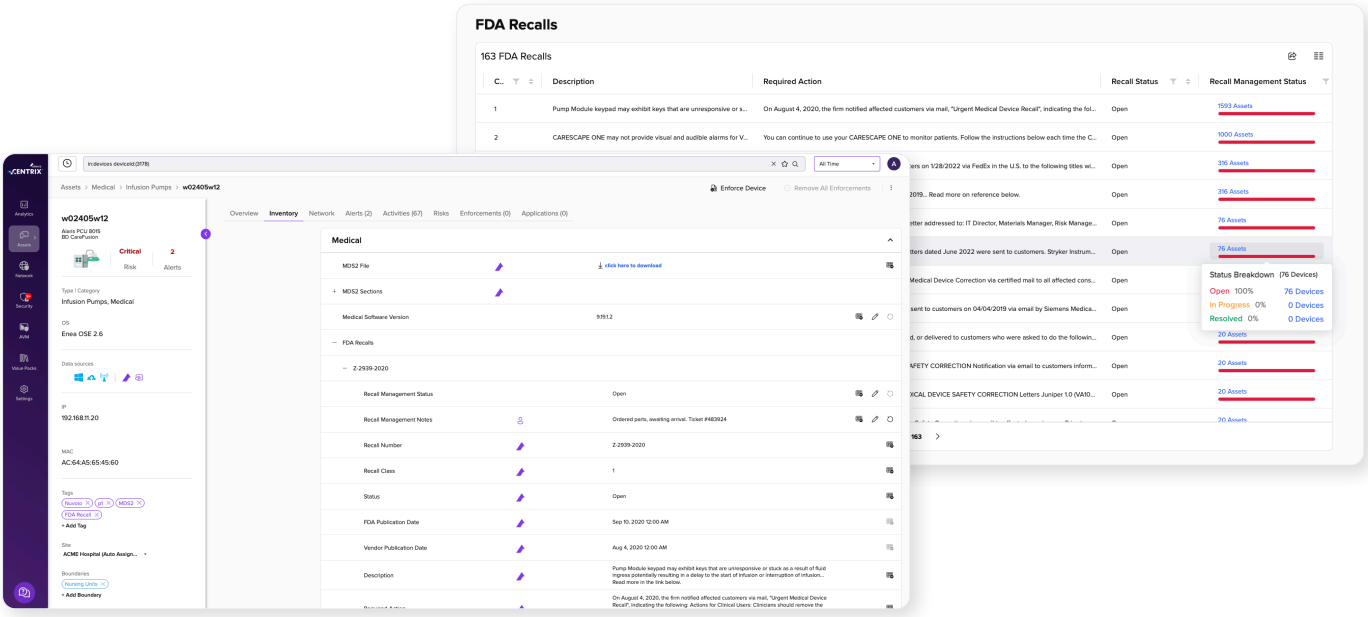
“MRI machines are extremely expensive devices. With Armis, we can see that one may be fully utilized at one time but later have a lull. For patient flow, we can better allocate resources and do more at optimal times to prevent patient backlog. From a clinical perspective, the graphs about utilization and how much was done in a day is something we’ve never had before”

Kash Parvaiz
CIO, University Health Network

FDA Recall and Security Advisories Management

Armis integrates with various regulatory bodies, device manufacturers, and vulnerability databases and uses its own rich intelligence engine to quickly identify devices affected by alerts and recalls and reduces identification and remediation workflows, saving the valuable time of clinical engineers and immediately providing value for your organization. Armis also enables organizations to bridge the gap between cyber risk and its associated clinical risk by conducting a 360 risk assessment.

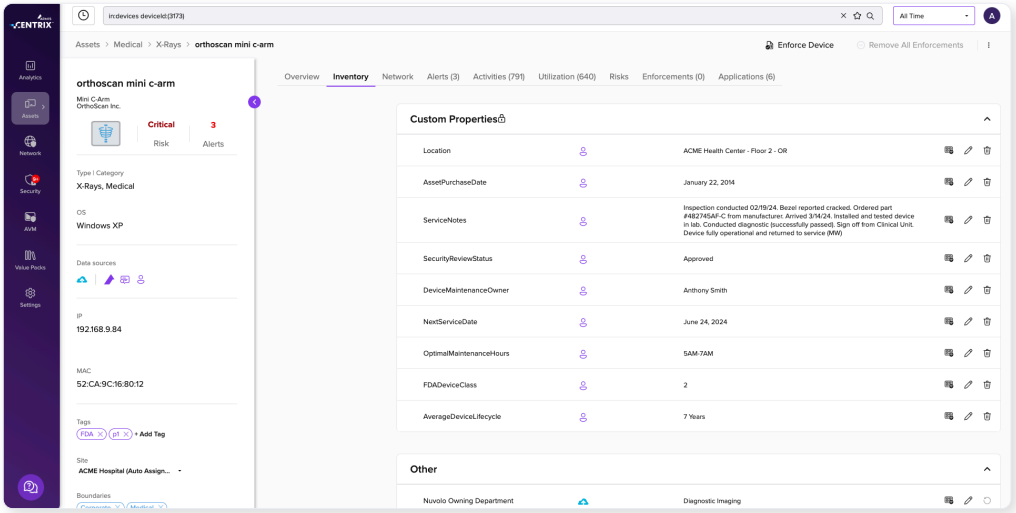
Prevent potential harm to patients by ensuring no device is missed and disruption is kept to a minimum. Automated recall assessments streamline Clinical Engineering processes and save hours of manual reconciliation efforts. Scheduled reports and dashboards help teams stay on top of new advisories and track efforts across existing recalls and integrations with CMMS and ticketing systems automate the creation of work orders and tasks for Clinical Engineering teams.



Enhanced, Automated Clinical Workflows

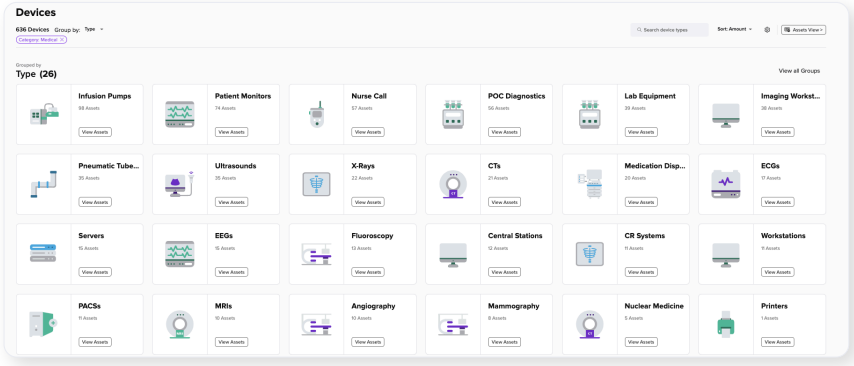
Power communication and updates between various medical devices and healthcare technology for a streamlined and centralized process. Real-time asset intelligence for clinical devices includes granular information about any medical device's network usage, software, and utilization data. This can be used to optimize your clinical engineering workflows and contribute to efficiency for the entire organization, whether locally or in a dispersed model.

Integrate with your Computerized Maintenance Management System (CMMS) to pull from and communicate the most up-to-date information about each of your medical devices. Leverage full and real-time asset intelligence to optimize clinical workflows, speed up time to resolution, and maximize operational efficiency. Armis integrates seamlessly with your existing infrastructure, correlating data from hundreds of tools, including your CMMS and endpoint security solutions. Compare performance against known good baselines for similar devices thanks to Armis' Asset Intelligence Engine and enrich your existing data set to streamline risk triage.



Medical Device Location Tracking

Armis automates the detection and assessment of every asset in your clinical engineering environment. This provides comprehensive visibility and location accuracy of every medical and clinical asset within your organization. Track and contextualize every device with instant visualization, usage, and communication information. With Armis, clinical engineers can save time spent locating devices and progress straight to their maintenance workflows.



Save hours of manual effort and view comprehensive device information to ensure efficient processes and uninterrupted patient care. Generate comprehensive reports on efficacy, usage, and any outliers to inform purchasing, resourcing, and broader security practices.

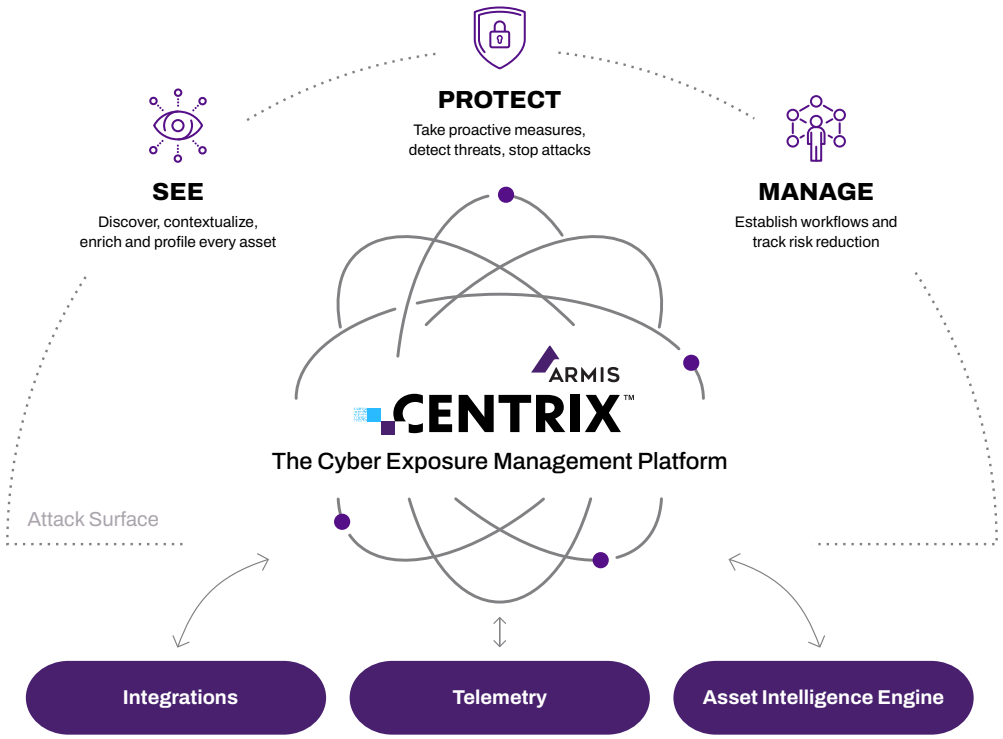
The Armis Asset Intelligence Engine

Core to Armis Centrix™ is our Asset Intelligence Engine. It is a giant, crowd-sourced, cloud-based asset behavior knowledge base–the largest in the world, tracking over four billion assets–and growing.

Each profile includes unique device information such as how often each asset communicates with other devices, over what protocols, how much data is typically transmitted, whether the asset is usually stationary, what software runs on each asset, etc.

These asset insights enable Armis to classify assets and detect threats with a high degree of accuracy. Armis compares real-time asset state and behavior to "known-good" baselines for similar assets we have seen in other environments. When an asset operates outside of its baseline, Armis issues an alert or can automatically disconnect or quarantine an asset.

Our Asset Intelligence Engine tracks all managed, unmanaged, IoMT and IoT assets Armis has seen across all our customers.



Key Outcomes and Benefits

- **Full-scope visibility and protection** reduce outages and keep your organization and patients safe
- **Reduce clinical risk** by managing FDA recalls, medical device configuration, and prioritizing the most critical issues
- **Report on offline medical devices** and quickly locate them
- **Track and manage FDA recall** notifications for all devices in one platform
- **Automated view of MDS2** correlation and risk analysis
- **Identify optimal maintenance windows** through advanced fleet utilization analytics
- **Care capacity is optimized**, with greater efficiency and effective resource allocation
- **Save clinical engineers hours of work** on manual processes
- **Increased speed to remediation** for better operational resilience
- **Advanced network segmentation** to protect medical devices as soon as they are connected.

"I was surprised to see how quickly you were able to determine what a device was. You could see our vital cart machines, the make, the model, when it was being used. You could see when we were running tests on patients."

Brian Schultz
Director of Network Operations
Burke Rehab Hospital

Armis Centrix™ is the industry's most comprehensive IoMT, IoT, OT and IT security solution, enabling clinical engineers to secure the devices and technologies that are the foundation of connected care innovation. Armis provides the information and insight needed for healthcare delivery organizations to confidently connect and operate all clinical assets across networks and ensure patient and device safety.

Armis, the asset intelligence cybersecurity company, protects the entire attack surface and manages the organization's cyber risk exposure in real time.

In a rapidly evolving, perimeter-less world Armis ensures that organizations continuously see, secure, protect and manage all critical assets.

Armis secures Fortune 100, 200 and 500 companies as well as national governments, state and local entities to help keep critical infrastructure, economies and society safe and secure 24/7.

Armis is a privately held company headquartered in California.

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