CASE STUDY | CLINICAL ASSET MANAGEMENT

TRIMEDX℠

ASCENSION IMPROVES EFFICIENCY, STAFF SATISFACTION, AND ACCESS TO EQUIPMENT

with clinical asset management strategies

A COMPREHENSIVE CLINICAL ASSET MANAGEMENT STRATEGY

provides positive impact to health system, patients, clinicians, & communities

Ascension is one of the largest non-profit, Catholic healthcare systems in the United States, with 2,600 sites of care and 139,000 associates.

Ascension's mission is to deliver compassionate, personalized care to all, with special attention to persons living in poverty and those most vulnerable. The challenges of today's healthcare industry can impact disadvantaged patient populations the most, which is why Ascension places a high priority on maintaining reliable and efficient clinical operations.

Alongside care providers and facilities, medical equipment is essential to fulfilling Ascension's mission. Managing a reliable equipment inventory can make a world of difference in delivering efficient care when patients need it most. For more than 300 sites of care and 500,000 pieces of equipment, Ascension's partnership with TRIMEDX for a total clinical asset management strategy goes beyond maintenance and focuses on proactively identifying opportunities to maximize productivity and value that medical devices deliver for Ascension, its providers, and its patients.

About Ascension

- **Headquarters: St. Louis**
- **Services in 19 states**
- **139 hospitals and 2,600 sites of care**
- **139,000 total associates**
- **36,000 care providers**
- **500,000 clinical assets**

IMPROVING CARE MANAGEMENT

Solving ventilator shortages during the COVID-19 pandemic

The COVID-19 pandemic put a well-documented strain on some of the most critical functions within health systems. Surging volumes of severe cases, as well as supply shortages, pushed many ICUs beyond capacity.[1,2] In particular, ventilators were considered essential for patients with impaired lung function, yet in many cases, inventories could not keep up with demand.

At Ascension, a system-wide inventory assessment identified over 500 ventilators as candidates for upgrades or replacements. These older devices would struggle to handle the unprecedented volumes that were expected.

Meanwhile, breakdowns of supply chains across the global economy made new ventilators more difficult to acquire than ever, hampering Ascension's efforts to replace many older devices. The only path forward was to increase the efficiency of the resources on hand by sharing equipment across multiple sites of care based on shifts in demand. The first step was to collect, centralize, and share comprehensive device data across multiple sites. That way Ascension could confidently assess utilization and effectively track ventilators as they moved to different locations across the system.

Clinical engineering teams responsible for keeping biomedical technology safe and functioning could also use this information to locate and monitor the ventilators for maintenance more efficiently. This improved visibility could reduce the risk of device downtime and suboptimal utilization for an already scarce resource that was essential to providing potentially lifesaving care.

Ascension engaged TRIMEDX to help establish a single source of reliable data for inventory management and device maintenance for its ventilators.

An essential early step in Ascension's application of a clinical asset management strategy was verifying and improving ventilator inventory records. While it may sound simple, a single, consistent inventory across a network of care is essential for aligning operations and best practices among facilities that serve different patient populations with distinct needs in varying environments.

With confirmed accurate inventory records, Ascension and TRIMEDX were able to locate ventilators quickly and confidently across the health system. They could then compare that inventory with utilization data to identify which units were in excess according to current patient volumes.

Leveraging these ventilators to address surges in demand due to COVID-19 also demanded maximizing the uptime and performance of each individual piece of equipment. TRIMEDX clinical engineering technicians could use the inventory data to monitor and responsively service the ventilators to keep them ready for use.

While a streamlined inventory system improved the visibility of ventilators, Ascension also needed a logistics approach that would help quickly get the devices where they were most needed. The solution required centralizing both processes and equipment.

TRIMEDX worked with Ascension to establish a single stockpile location. Ventilators not currently in use were verified to be in working order and then transferred to the stockpile. This location was strategically positioned in an area central to the Ascension network of care facilities with a reliable infrastructure to support transportation logistics. A full-time clinical engineering supervisor worked on-site to perform maintenance and repairs as well as manage equipment transfers. Ultimately, the centralized facility managed a stockpile inventory of 384 ventilators, providing greater access to these critical and scarce machines to more sites of care than a scattered inventory ever could.

Ascension added over 25,000 pieces of medical equipment over the course of 2020 and 2021

Source: Ascension TRIMEDX data

To make faster, more reliable deployment a reality, the stockpile adopted a standardized early-indicator process for identifying needs across the network. TRIMEDX worked with Ascension clinical leadership to identify the appropriate criteria for identifying demand surges using comprehensive utilization and volume data from TRIMEDX clinical asset management technology. Once a site hit 70 percent utilization for its current inventory of ventilators, it would submit a request for additional equipment to the stockpile. When utilization fell below the threshold, excess ventilators could be returned to the stockpile.

With a central location for deployment, streamlined maintenance, and a standardized approach to identifying urgent needs, Ascension was able to use its stockpile of ventilators to fill requests for additional equipment within two to three days. And while the total stockpile numbered 384, Ascension was able to facilitate 922 requests and transfers to meet fluctuations in demand.

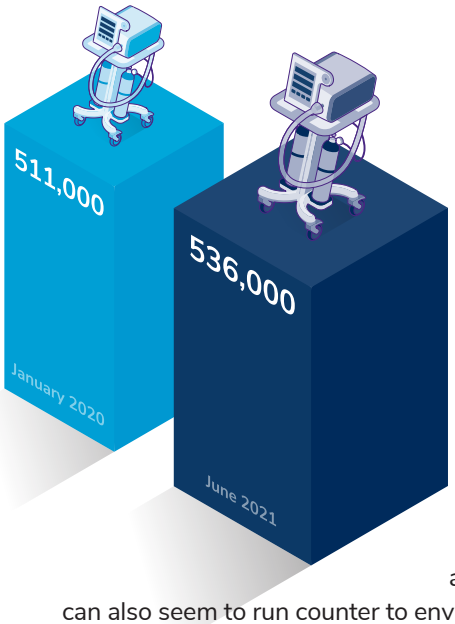
By taking advantage of a comprehensive, system-wide inventory and centralized resource distribution powered by the TRIMEDX clinical asset management strategy, Ascension was able to meet a dire need across an entire network of care better than any individual facility could on its own.

DRIVING SUSTAINABLE CARE

Maximizing the useful life of clinical assets and reducing waste

Ascension's mission to provide compassionate, personalized care to all extends beyond the immediate clinical setting to helping ensure the health of the communities it serves. This includes a focus on driving sustainable practices and establishing strong governance for managing the health system's environmental impact. Ascension has committed to long-term environmental and sustainability targets that will allow it to deliver care and support population health today and for future generations.

This commitment includes a pledge for Ascension to achieve net zero carbon emissions and zero waste by 2040. Healthcare is an incredibly resource-intensive industry. Many of the material resources in patient care are lifesaving in emergency cases or are required to treat and manage long-term conditions. This criticality escalates the challenge of striving for sustainability as rigorous safety and quality practices are also necessary.



Likewise, advances in medical equipment technology and their application in healthcare can also seem to run counter to environmental sustainability. Ascension's asset inventory of medical equipment was no different, growing at nearly five percent year over year, despite efforts to consider environmental impact in purchasing and disposal procedures.

Ascension addresses the intersection of these two crucial goals of high-quality, consistent care and sustainability by centering one of the major pillars of its strategy on supply chain management. This pillar encompasses medical equipment and related consumable resources through sustainable sourcing, product use management, recycling, and waste reduction.

Making progress toward these bold, quantifiable goals requires a framework for Ascension to measure both the current state and progress on improving its environmental impact. The framework for increasing the sustainability of a medical equipment inventory and its use was found in the people, processes, and technology that comprise the TRIMEDX clinical asset management program. With technology, processes, and dedicated resources from TRIMEDX, Ascension capitalized on data insights to better manage its clinical asset inventory and maximize its available equipment resources throughout their full lifecycle.

DELIVERING VALUE BY REALLOCATING EQUIPMENT

One of the keys to increasing sustainability in Ascension's medical equipment was finding opportunities to improve the utilization of, and the value delivered by, the current inventory. This required two essential pieces of information:

- → **Which equipment across the Ascension system is underutilized?**
- → **Where is there increasing demand for similar clinical assets?**

The major hurdle to these insights was visibility. Sites of care did not historically have a method to share equipment utilization data and aggregate information on medical equipment needs.

By adopting TRIMEDX Clinical Asset Informatics, Ascension increased access to vital information on clinical engineering, asset management, mobile equipment management, and cybersecurity, all geared toward making sure the right equipment was in the right place at the moment of need.

With a standardized platform across sites of care for collecting, managing, and assessing medical equipment data, it became possible to directly compare utilization rates and benchmark against industry best practices to truly understand where unnecessary gaps in clinical operations existed.

Ascension leveraged TRIMEDX not just to identify opportunities for a more efficient inventory utilization, but also to act on them. The health system was one of the first to pilot the innovative TRIMEDX Reallocation Platform—an online tool for listing and requesting devices available for reallocation to other sites of care to maximize device usage and address unmet clinical needs. With comprehensive data and the Reallocation Platform, acquiring equipment to meet demand shifts from within Ascension's own inventory became not only possible, but easier than ever.

With TRIMEDX technology and a standardized, data-driven reallocation strategy, Ascension reallocated over 1,400 devices across 107 sites of care throughout the system.

Ascension drove success and sustainability with reallocation opportunities including:

- An underutilized X-ray system in Texas was repaired and reallocated to a Michigan Emergency Department.
- A surgical robot system and table valued at $1.65 million were reallocated to a Texas site in need, eliminating the need for a net new purchase.
- A portable CT scanner was reallocated from Illinois to Texas to support a new neurosurgery service line.
- A surgical table was reallocated from Florida to Indiana to support expanding orthopedic surgery lines.
- 60 beds were reallocated within Florida to replace beds that were irreparably damaged during hurricane flooding.

Leveraging currently available inventory had the invaluable effect of freeing up precious financial resources. It also reduced the materials, energy consumption, and transportation logistics required for new equipment purchases.

FINDING NEW VALUE FOR AGING EQUIPMENT AND REDUCING WASTE

When medical equipment is no longer needed within a health system, finding the best way to remove it can be challenging. Disposing of devices in landfills could have presented a significant obstacle to Ascension's sustainability goals. Removing fixed equipment can also consume significant energy and materials, not to mention potentially interrupting clinical operations.

However, leaving underutilized or excess equipment unidentified and unaddressed can also cause an inefficient drain on resources such as power and facility space. The key to end-of-life decisions for a medical device is a deep understanding of the equipment's capability to provide value.

In total, Ascension worked with TRIMEDX teams to identify and remove over 11,000 pieces of equipment.

With data and expert strategic advising, Ascension was better able to leverage the remaining useful life of aging equipment. Combined with aggregated data on equipment utilization and benchmarks from across the system, Ascension was able to confidently determine what additional useful life might look like for equipment.

In cases in which there was not an opportunity to reallocate and fully utilize a piece of equipment, retiring and removing the asset from a facility helped to reduce resource waste and optimize the utilization and performance of remaining clinical assets.

In total, Ascension worked with TRIMEDX teams to identify and remove over 11,000 pieces of equipment. While Ascension could no longer make full use of these devices, it was often the case that there was still potential for them to be of service in a clinical environment. In these cases, Centurion Service Group: A TRIMEDX Company proved invaluable in reducing unnecessary waste.

Centurion Service Group provides clinical asset disposition services that help keep medical equipment out of landfills and operating in service to clinicians and patients. Its dedicated, full-service approach to equipment disposition meant that Centurion was able to provide Ascension with efficient pickup, storage, and logistics. Centurion Service Group works with several international healthcare organizations to find a second life for surplus medical equipment, expanding the reach and impact of clinical care. Ascension was able to keep thousands of pieces of equipment out of landfills without having to directly manage the steps of removal.

CREATING EFFICIENCIES WITH TOTAL ASSET MANAGEMENT

The TRIMEDX clinical asset strategy focused on delivering actionable insights to Ascension leadership to support strategic capital planning and asset management decisions including replacements, upgrades, dispositions, and reallocations. Ascension utilized this data to operate efficiently in delivering care and in managing its use of resources that impacted the organization's waste output and carbon footprint.

Ascension's clinical asset management strategy with TRIMEDX resulted in a major positive shift in the medical device inventory trend. Within the first two years, Ascension leveraged $25 million worth of equipment already existing in its inventory to meet needs that would otherwise have required new purchases. The reallocation strategy also eliminated $12 million in unnecessary equipment rentals. With streamlined processes, greater inventory visibility, and the expertise of TRIMEDX advisors, Ascension created a culture in which the organization could optimize both the performance of its install base and its overall footprint. By March 2023, Ascension's clinical asset inventory totaled 509,000 devices, below inventory levels in January 2020. Ascension continues to build on these successes in its partnership with TRIMEDX to meet the ever-evolving needs for medical equipment technology while providing sustainable, quality patient care.

Ascension and TRIMEDX controlled and reversed equipment inventory growth while driving efficiency

Source: Ascension TRIMEDX data

IMPROVING NURSING SATISFACTION AND ENHANCING PATIENT SAFETY WITH MOBILE MEDICAL EQUIPMENT MANAGEMENT

Mobile medical equipment is essential to quality care, being in use at the patient's bedside in nearly every stage of care, especially in inpatient settings. This includes devices such as physiologic monitors, infusion pumps, and sequential compression devices.

As crucial resources in direct patient care, mobile equipment can have an immense impact on the day-to-day work of nursing staff. Time spent locating, moving, checking, and cleaning these devices can take away from the time nurses are able to spend with patients and negatively affect job satisfaction.

Ascension saw mobile medical equipment management as an opportunity to both streamline clinical operations and improve satisfaction for nursing staff during a particularly challenging time for clinicians. The health system enlisted TRIMEDX to implement a dedicated mobile medical equipment (MME) management program at facilities in Texas and Indiana.

One of the first steps of the process was collaborating with nursing staff to understand their mobile equipment needs, including gaps in their current processes. Time spent searching for devices was a key area of concern for nurses, who wanted to eliminate as many obstacles as possible to providing direct care for their patients.

ESTABLISHING EFFICIENCY WITH CONSISTENCY

Ensuring that mobile medical equipment was safe, ready, and accessible for patient use was a matter of creating a standardized process that could also simplify work for nursing staff. Designing and designating clean and soiled rooms central to busy patient care areas to process and store mobile equipment was a foundational element of this process. From these repositories, all activities for managing and deploying devices could be streamlined.

The TRIMEDX Mobile Medical Equipment team partnered with clinical engineering teams to ensure timely maintenance and repairs for mobile medical equipment without disrupting patient care. Using central storage and processing rooms, the maintenance needs of each device could be determined and addressed with greater confidence.

When devices were aggregated in soiled rooms, the MME team could make sure that cleaning processes were followed in line with OEM instructions and then safely transfer patient-ready equipment to designated clean par rooms. Ensuring proper cleaning techniques within a controlled environment was critical to managing a potential vector of hospital-acquired infections (HAIs). Cleanliness was validated using ATP (adenosine triphosphate) swab testing as an additional safeguard for patient safety. ATP testing provides an objective and quantifiable method to assess the effectiveness of cleaning methods by rapidly measuring organic bio-burden on a surface.

Full visibility to the facilities' mobile medical equipment also meant that Ascension could gain objective insights into needs for additional purchases and rentals. This clarity meant potentially identifying opportunities to decrease inventory footprint without hurting clinicians' access to equipment.

CREATING SAFER, HAPPIER SITES OF CARE

Ascension's facilities in Indiana and Texas both achieved substantial improvements in key areas that challenge many health systems with managing mobile medical equipment. Since 2017, the TRIMEDX MME program has consistently delivered improved cleanliness over baseline measurements.

In Texas, Ascension's improvements in device cleanliness resulted in 98 percent of equipment passing initial ATP testing. In Indiana, 99 percent of devices passed initial ATP testing thresholds. In addition to helping to keep patients and staff safe with clean equipment, high passing rates for initial ATP testing also contribute to operational efficiency. Equipment that does not pass initial ATP testing requires additional cleaning, increasing turnaround times until equipment was available for use again. Maintaining as low a failure rate as possible could help ensure the reliable availability of mobile medical equipment when it is needed for patient care.

Ascension nurses saved over two hours per shift locating and cleaning mobile equipment

2 hours 54 min
In-house baseline

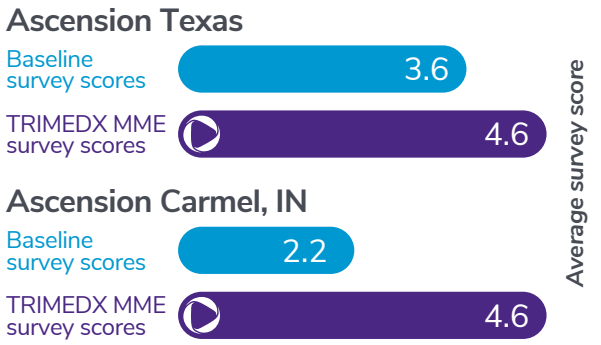
14 min
TRIMEDX MME

Source: Ascension TRIMEDX data

The efficiency of care benefited as well, with the MME program reducing the amount of time nurses spent looking for and cleaning equipment. Ascension facilities that adopted the TRIMEDX MME program were able to reduce the time nursing staff spent each shift searching for and sanitizing equipment by over two hours.

Nurses and nursing support professionals felt the impact of the time that the new equipment strategy saved. Quarterly nursing staff surveys in Texas revealed a 27 percent improvement in overall satisfaction, averaging 4.6 on a five-point scale. Nursing staff in Indiana reported 109 percent higher satisfaction, also with an average of 4.6. Across all sites, Ascension achieved a 33 percent improvement in satisfaction.

Available and reliable equipment shows a major effect on Ascension staff satisfaction surveys



Source: Ascension TRIMEDX data

Allen Overturf, MSN-L, RN, FACHE, CENP, CHFP, NEA-BC, chief nursing officer at Ascension Seton Hays in Texas, said: "Since MME implementation and refinement, the process around equipment management has become clear, consistent, reliable, and safe. The consistency of process and central point of contact for the process has improved reliability of access to the prepared equipment where and when needed."

By ensuring mobile medical equipment was more available and reliably safe to use with the TRIMEDX program, Ascension was able to improve the satisfaction of nurses and empower them to do what matters most: care for patients.

At Ascension, every piece of technology and process within its facilities has a critical role in supporting the mission of providing compassionate, personalized care to all, especially those who need it most. Medical equipment inventories can often be an overlooked resource within healthcare systems until a device is unavailable for delivering care. With TRIMEDX and a comprehensive clinical asset management strategy, Ascension has identified and acted upon proactive opportunities that leverage its medical equipment and amplify the positive impact the organization has on patients, staff, and communities.

SOURCES

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2. *Center for Devices and Radiological Health. (n.d.). Medical Device Shortages List. U.S. Food and Drug Administration. https://www.fda.gov/medical-devices/coronavirus-covid-19-and-medical-devices/medical-device-shortages-during-covid-19-public-health-emergency*

UNLOCK THE **FULL POTENTIAL** OF YOUR CLINICAL ASSETS

TRIMEDX is an industry-leading, independent clinical asset management company delivering comprehensive clinical engineering services, clinical asset informatics, and medical device cybersecurity. We help healthcare providers transform their clinical assets into strategic tools, driving reductions in operational expenses, optimizing clinical asset capital spend, maximizing resources for patient care, and delivering improved safety and protection. TRIMEDX was built by providers, for providers, and leverages a history of expert clinical engineering with data on 90-95% of in-use medical equipment in the United States.

Learn how to make smarter decisions with capital resources.

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TRIMEDX℠

5451 Lakeview Pkwy S Drive Indianapolis, IN 46268

info@trimedx.com

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