Diligent Robotics:

Moxi Case Study
Mary Washington Healthcare

Mary Washington Healthcare is a non-profit regional healthcare system located in Fredericksburg, Virginia that provides inpatient and outpatient care to over 50 facilities including Mary Washington Hospital, a 471-bed regional medical center, and Stafford Hospital, a 100-bed community hospital. With a clear mission to improve the health of the people in the communities they serve, the non-profit health system invests their profits back into the organization through key initiatives including the expansion of services, an investment in staffing, and upgrading technology to enhance the overall quality of patient care. For more information about their services and facilities, visit mwhc.com.

The Challenge

As nursing units at Mary Washington Healthcare embarked on this project to integrate automation into their daily routines, they determined that bedside nurses were spending about 1/3 of their time each day engaged in non-patient, low-level tasks such as picking up medications from the pharmacy at discharge, running lab specimens, and retrieving patient belongings left in the ER. After learning about Moxi, the automated robot developed by Diligent Robotics, nursing leaders realized Moxi could easily take over these tasks and return that time spent to nursing staff so they could spend that valuable time with patients. Compounding this issue was the labor shortage that continues to impact staffing for other clinical support roles.

In working with the bedside nurses, leadership at Mary Washington Healthcare knew it was critical to get their buy-in up front and began engaging with them on what type of workflows an autonomous robot might be able to impact. That feedback helped inform the work Moxi would eventually engage in with the nursing teams. Rather than having robots take a task or job away from indispensable staff, the robots are easing the stress and workload of one of the most demanding jobs in the U.S. today.

The Impact

From the beginning, Diligent Robotics worked with a cross-functional team including nursing leadership and Mary Washington Healthcare's Innovation Council made up of leaders in innovation, performance improvement and clinical informatics. Together, they drove a smooth implementation plan that would put Moxi to work across multiple hospital units with minimal work from the internal teams and with no infrastructure additions or upgrades required. As soon as Moxi arrived on site and began mapping the hospital, the nursing teams were able to immediately see how Moxi was going to make a difference and would provide an impressive ROI.

Mary Washington Healthcare started with two robots so the system could have continuous coverage 24/7, seven days a week. Due to an increased demand for Moxi, they quickly scaled to a third robot and plan to add a fourth in the coming weeks. The technology is

> *" The simple things Moxi does can make a difference. It can save nurses the 30 minutes it might take to go from the fifth floor to the basement to pick up medication that can't go through the tube system from the pharmacy. And picking up after-hour meals for patients is one of Moxi's most popular tasks. Since two Moxi robots began operating in the halls of Mary Washington Hospital in February, they've given workers back approximately 600 hours of time. "*
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> **Abigail Hamilton,**
> Program Manager,
> Performance Improvement,
> Mary Washington Healthcare.
> Quoted in WIRED Magazine,
> April 2022

By The Numbers: Moxi's Impact at Mary Washington

- Over **27,500 deliveries** completed.

- Over **14,300 hours** of time returned to nurses and clinical teams.

- Over **13,600,000 steps** saved and over **4,600 miles** traveled

- With over **8,600 deliveries** - averaging **26 minutes** each - the pharmacy department is Moxi's highest user.

Timeframe: February 2022 – April 2023

impressive. Not only is Moxi able to navigate every door with ease, including those requiring badge access, but the robot can also take elevators to deliver items between floors. To date, Moxi has impacted nurses on every floor and care team members in every department. At Mary Washington Healthcare, Moxi also helps with additional tasks day and night, including fetching items from central supply that are not normally stocked on the patient care units and distributing PPE and lightweight equipment in a just-in-time-fashion so that the hospital is able to make efficient use of these

The Future

Diligent Robotics is a hands-on partner, dedicated to ensuring that organizations are utilizing Moxi in a manner best suited for their needs. Mary Washington Healthcare plans to continue measuring the robot's impact and adding workflows that will further support their nurses and clinical staff. Through regular monitoring and feedback, Diligent Robotics is continually making Moxi more efficient and effective. Diligent is also working with Mary Washington Healthcare to align value from Moxi with the Quadruple Aim model, which defines overall system success in care team wellbeing, population health goals, patient experience and reducing costs, all of which is being positively influenced by Moxi.

Through this joint work with Diligent, Mary Washington Healthcare's robots work side-by-side with clinical staff to allow them more time for the work they love. Moxi has been wildly popular and has become a bit of a celebrity throughout the hospital, even posing for selfies with patients and staff. Already, Mary Washington Healthcare has seen a positive impact in efficiency and retention since Moxi was onboarded, and the organization envisions a future in which their teams are relying on robots to help them with everyday tasks so that they can focus on the humanity in caring for patients. They believe that nurses should do work they care about—robots can do the rest.