

CASE STUDY

- 757 bed state-of-the-art teaching hospital serving Maryland and the Mid-Atlantic region
- Multi-specialty acute care facility caring for more than 32,000 inpatients and 300,000 outpatients annually
- Considered one of the nation's most technologically advanced hospitals
- Designated a 2010 "Top Hospital of the Decade" for patient safety and quality of care by the Leapfrog Group

With Aethon's TUG robots, used in conjunction with MedEx tracking, hospitals can securely track and transport medications from the point of origin to the desired recipient, reducing potential for error and for drug diversion, improving regulatory compliance, and enhancing patient care and nurse satisfaction.

TUG/MedEx Savings at a Glance

In the first year of implementation, UMMC's TUGs and TUG/MedEx Solution:

- Decreased drug delivery time from 74 to 30 minutes.
- Saved nurses 6,123 hours in drug tracking and "trips."
- Reduced medication losses.
- Improved nurse satisfaction with pharmacy by 23%.
- Increased delivery reliability by 23%.
- Increased delivery predictability by 50%.

UNIVERSITY OF MARYLAND MEDICAL CENTER DECREASES CYCLE TIME, INCREASES NURSE SATISFACTION WITH TUG ROBOTS AND MEDEX SYSTEM "CHAIN OF CUSTODY" SOLUTIONS



The Situation

Drug inventory losses cost hospitals millions of dollars a year. Not to mention slow drug delivery and cycle time that can compromise care and outcomes. To address this and other medication-related challenges, the University of Maryland Medical Center (UMMC) established four goals:

1. Improve patient care in its trauma unit.
2. Reduce medication losses.
3. Enhance delivery of medications throughout the hospital (reliability and speed).
4. Improve nurse satisfaction.

These were particularly important goals for a pharmacy that dispenses 25,000 doses per day.

The Challenge

Despite the outstanding reputation of UMMC, including a designation as *Leapfrog's* Top Hospital of the Decade, its nurses felt that the pharmacy's delivery cycle time average (the time from receipt of an order to delivery) of 74 minutes could be improved. Nurses also expressed concerns that they were spending too much time tracking down medications, thus reducing time spent on direct patient care. In addition, the hospital was concerned about drug diversion and expired product.

“The TUGs allow nurses to spend more time focusing on patient care, and less time on logistics. Patients are getting medications sooner and nurse satisfaction has improved.”

**– Katherine Mulligan, RN, BSN, SCN1,
Director of Nursing, UMMC**

“When TUG makes deliveries, the pharmacy staff can spend more time preparing medications and answering questions from doctors, nurses and others on the patient care team.”

**– Neelesh Vaidya, RPh., Clinical Pharmacist,
Manager of Trauma Pharmacy, UMMC**

In addition to improving regulatory compliance related to the delivery and storage of medications, the TUG/MedEx solution assists in solving one of the most prevalent and costly operational issues in hospitals today – missing medications.

About Aethon:

Aethon improves healthcare efficiency and patient care with innovative logistics, delivery and asset management solutions. Hospitals throughout the United States now utilize TUG robots in a way that allows them to reallocate and refocus staff on the priorities of their core missions – providing the best patient care possible.

The TUG Solution

UMMC needed a comprehensive solution that addressed quick and reliable medication delivery while improving nurse satisfaction and cost containment. To help meet these goals, the hospital turned to Aethon and its autonomous mobile robots, known as TUGs. TUGs deliver, track, and retrieve medications and supplies, improving asset utilization and workflow, enhancing clinical productivity, ensuring regulatory compliance and reducing costs. In 2004 UMMC implemented three TUG robots at the trauma unit to enhance timely medication delivery.

First Year Results

In the first year, TUG robots significantly decreased cycle time – from 74 minutes to 30 minutes, enhancing patient care and nurse satisfaction. With the 24/7 availability of TUGs, nurses no longer needed to spend time tracking down medications, leading to increased time at the patient’s bedside and better care.

Expansion with MedEx

Based on the initial success, UMMC deployed six more TUGs to support delivery to additional nursing units. Then in 2010, the medical center piloted a revolutionary new “chain-of-custody” technology from Aethon utilizing TUGs and MedEx, the healthcare industry’s first completely automated tracking and chain-of-custody solution to provide hospital pharmacies with real-time location and status of medications throughout the facility. This advancement allows controlled substances to be delivered by the TUG, increasing the number of deliveries made by the TUG and improving on an already impressive impact on pharmacy efficiency.

The MedEx System combines the TUG delivery solution with Radio Frequency Identification (RFID) technology and biometric scan capabilities to create an electronic chain-of-custody receipt identifying:

- What medication is being transferred
- When it was routed
- Where it is at any given moment
- Who was involved throughout the delivery process

The result is increased medication security and compliance, reduced pharmacy paperwork and streamlined tracking, timely delivery, decreased drug diversions and medication savings.