



# Sentara RMH Medical Center achieves 99% drug distribution efficiency with XR2 system

## Customer Profile

Sentara RMH Medical Center is a 238-bed community hospital providing cardiac, oncology, orthopedic, and mother-baby service lines, among others. It serves a seven-county area in the Shenandoah Valley region of Virginia and is part of Sentara Healthcare, an integrated healthcare system with 12 hospitals in Virginia and North Carolina.

## The Challenge

For nearly two decades, Sentara used the Omnicell® ROBOT-Rx® Central Pharmacy Robotic System to automate medication distribution and enable top-of-license practice. The pharmacy team became skilled at optimizing the system for peak efficiency and capacity, particularly as prescribing patterns and patient mix changed. However, as the system reached its upper limits, the team sought new options.

Pharmacy was joined by IT to develop a five-year strategic plan, including a comprehensive assessment of medication distribution models and supporting technology. The objectives included:

- Maximize pharmacist clinical time
- Support nursing's patient care model
- Reduce manual processes
- Lower inventory costs and maximize inventory turns
- Reduce reliance on medication unit-dose packaging

## The Solution

After a thorough review of available options, Sentara's pharmacy leaders chose Omnicell's XR2 Automated Central Pharmacy System.

The XR2 system automates medication storage and retrieval to increase medication safety, improve operational efficiency, and maximize inventory control.



### Sentara RMH Medical Center Harrisonburg, Virginia

#### Challenge

- End of life robotics system was unreliable
- Cart fill model preferred by clinicians
- High costs of medication packaging
- Packaging labor costs

#### Solution

- XR2 Automated Central Pharmacy System

#### Impact

- Achieved automated dispensing to 99%
- Reduced medication packaging by 90%
- Reduced pharmacist checking by 90%
- Improved automation capacity by 80%
- Reduced pharmacist distributive tasking to 5%
- Increased inventory turns to 16

## The Impact

The XR2 system leverages manufacturer barcodes, making unit-dose packaging unnecessary, and it supports a variety of form factors, including individual blisters, blister cards, vials, cups, packets, syringes, and others. The XR2 system provides:

- 100 percent barcode scanning, eliminating human error
- Support for cartless and cart fill distribution
- Advanced algorithms to reduce waste and maintain accurate inventory

## Realizing Transformational Outcomes in Central Pharmacy

In performing the daily cart fill, the XR2 system pulls orders from the Epic system. The XR2 system knows which medications are stored in its inventory and automates dispensing of approximately 2,500 patient-specific doses each day. Another 500 first doses are similarly automated through the XR2 system.

Overall, approximately 75% of patient medications are distributed via the XR2 system and delivered to locked nurse servers located within patient rooms. Other medications, such as PRNs and narcotics, are stored in unit-based automated medication dispensing cabinets.

This high level of automation efficiency enables Sentara RMH to transfer pharmacist and technician labor from distributive to top-of-license functions. Staff are no longer required to complete complex repackaging operations, and with the expansion of products dispensed through the XR2, it has decreased the time spent manually picking medications.

## Optimizing Inventory, Realizing Cost Savings

The XR2 system also automates restocking and inventory management, providing additional benefits to Sentara RMH.

Further, Sentara RMH increased its automated storage inventory by 80% – to 45,000 doses – and increased automated line items to 750.

Sentara RMH now orders most oral solid medications in blister packages from manufacturers. The cost difference is negligible and offset by eliminating consumable costs and reallocating packaging labor.

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“Not only is the XR2 system safer and more dependable, but it allows staff to function outside of supporting robot technology. The unexpected gains are supporting a more efficient operation. Pharmacists are now checking fewer than 50 manual picks a day, a 90% reduction, through a safer, technology-driven distribution process.”

“About 85% of all product we order is now in unit-dose blister form with 2D stacked barcodes. Using manufacturer packaging is inherently safer and it's more efficient because the need for a pharmacist check of repackaged medications is eliminated.”

- **Jamin Engel, PharmD, MBA, BCSCP**  
Interim Director of Pharmacy
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