

WHITE PAPER

# Texas Children's Hospital Leverages Central Pharmacy Robotics for Automated Dispensing Cabinet Replenishment

Central Pharmacy Dispensing Service

Texas Children's Hospital (TCH) is a children's and women's health system consisting of three campuses in the greater Houston area with 865-plus beds. Consistently ranked as one of the best children's hospitals in the nation by the U.S. News & World Report, the system sees more than 35,000 admissions annually.

## Texas Children's Hospital

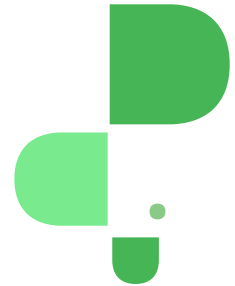
**Challenge:** As a leader in innovation within healthcare, TCH consistently seeks ways to leverage technology and automation to support efficient medication management to dispense doses for its mother-baby and pediatric populations. Seeking innovative medication management solutions, TCH selected Omnicell's Central Pharmacy Dispensing Service (CPDS) and XR2 Automated Central Pharmacy System to gain the following benefits:

- Increased medication safety through 100% barcode scanning
- Increased inventory visibility
- Decreased labor expense
- Decreased medication waste

TCH was already using Omnicell's XT Automated Dispensing Cabinets to dispense approximately 1.3 million doses annually. Prior to the introduction of the XR2 Automated Central Pharmacy System for cabinet restocking, TCH was utilizing manual workflows supported by open shelving and carousels. This resulted in medication waste, error-prone procedures, and a high dependence on the pharmacy personnel's manual labor.

With a high utilization of ADCs to dispense medication doses, TCH needed to streamline the patient-specific dispensing workflow of their XR2 system to enhance their ADC restocking process to drive visibility and efficiency in dispensing medications across the health system.

**Solution:** Recognizing the difficulties in previous restocking workflows, TCH and Omnicell formed a partnership to leverage the XR2 technology to fit the institution's unique needs by supporting the dispensing of patient-specific



### Challenge

- TCH leveraged carousels to fill ADCs within the TCH Health System. This created numerous challenges with excess inventory and expired medications.

### Solution

- TCH partnered with Omnicell to implement advanced Central Pharmacy dispensing robotics supported by expert services, developing a pharmacy workflow to help restock ADCs across the health system.



and cabinet restock medications. Additionally, the pharmacy team at TCH developed an innovative workflow to restock ADCs utilizing the XR2 technology. The pharmacy team at TCH worked closely with Omnicell to develop a software application that would allow them to operationalize the Omnicell XR2 for restocking automated dispensing cabinets – a first for the industry.

**Impact:** Through this new workflow, TCH is enhancing patient safety with 100% barcode scanning within the XR2 Automated Central Pharmacy System, improving stock rotation with earliest-to-expire dispensing algorithms, improving inventory capacity and count accuracy, and ultimately will create uniformity across campuses with opportunities for future expansion. The decreased reliance on manual labor will also allow staff to focus on higher-value activities.

## The Pioneering Workflow

### Getting Ready

1. TCH and Omnicell worked closely for over two years to enhance the XR2 system in restocking ADCs.
2. The TCH pharmacy informatics and Omnicell teams conducted multiple tests to support a seamless dispensing process from the XR2 to the ADCs.
3. The TCH pharmacy inventory and informatics teams partnered to develop a workflow to restock ADCs from the XR2.
4. Intradepartmental collaboration between operational leaders, the pharmacy informatics team, the pharmacy inventory team, and other key stakeholders was a crucial component of the workflow's successful implementation.

### Going Live

TCH began the conversion at the main campus in the Houston Medical Center. A day of the workflow:

1. Cabinets are grouped by the areas that are serviced. Each morning automated restock reports for the cabinet groups are sent to the XR2.
2. Processing one group request at a time, the XR2 prepares medication bags containing one medication for a specific cabinet in the group.

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“ Here at Texas Children's, we like to push the envelope with technology and are accustomed to innovating – using technology designed for the adult context in pediatrics. We get creative to make the system as safe and efficient as we can.”

- Riley D. Jackson, Pharm.D.  
PGY-2 Pharmacy Informatics Resident

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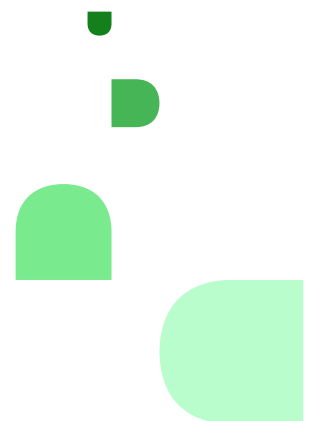
“ Being able to pioneer the way we use the XR2 allows us to accomplish our mission of creating a healthier future for the patients we treat by providing the best patient care possible.”

- Lily H. Tran, Pharm.D., MHA, MS  
PGY-2 Pharmacy Administration Resident

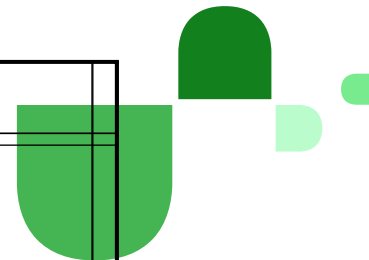
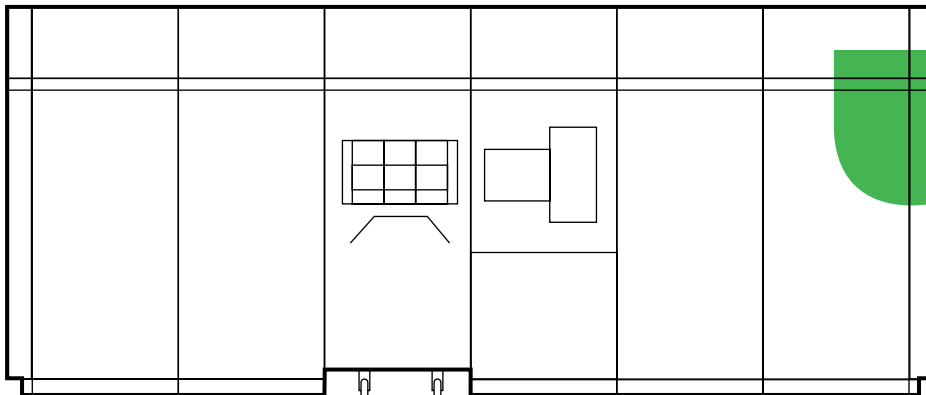
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“ The most important part of this undertaking was collaboration – the joint effort between the Omnicell team, our pharmacy informatics team, and our pharmacy inventory team produced the success of this innovative project.”

- Gee Mathen  
Director, Pharmacy Clinical Applications and Technical Services



3. As medication bags are dispensed, they are sorted into bins for each corresponding cabinet. TCH's in-house barcode scanning program is used to support sorting accuracy.
4. The contents of the bins are then transferred to cabinet bags using the in-house barcode scanning program to ensure the correct cabinet bag.
5. Pharmacy inventory technicians use the cabinet bags to restock the assigned group of cabinets which are expecting the exact quantity of each medication dispensed by the XR2.
6. Barcode scanning is again utilized when pharmacy technicians restock the cabinets to ensure accuracy of the transfer from medication bags to the ADC bin.
7. Progress is tracked throughout the day in real-time by an in-house dashboard.
8. The data generated from every facet of this workflow is regularly reviewed for process improvements.



View more information on the XR2 Automated Central Pharmacy System at [Omnicell.com](https://www.omnicell.com).

