Texas Children's Hospital Saves Tens of Millions Annually by Reducing Drug Waste

CUSTOMER STORY

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Executive summary

Texas Children's Hospital (TCH), one of the largest pediatric hospitals in the U.S., spends more than $400 million annually on medications. Yet, outdated manual inventory processes created waste, losses and inefficiencies — up to $40 million each year from expired and mismanaged drugs.

Recognizing the urgent need for meaningful and sustainable change, TCH pharmacy leaders partnered with Tecsys to design and implement an RFID-enabled, fully automated pharmacy inventory system. Built on Tecsys' Elite™ Healthcare platform, the solution integrates with Epic Willow, and leverages Zebra hardware and Terso RFID cabinets to provide unprecedented visibility and control.

The results: millions saved in drug spend, trust restored in pharmacy operations and a model of innovation now influencing pediatric care nationwide. Beyond cost avoidance, the initiative reframed pharmacy as a strategic asset — shifting it from a perceived cost center to a margin driver and a source of enterprise-wide visibility.

Leading the effort

Jeff Wagner, PharmD
Vice President, Pharmacy Operations, Specialty Pharmacy and Respiratory Therapy Care and ECMO
Texas Children's Hospital

Gee Mathen
Director, Pharmacy Application and Technical Services
Texas Children's Hospital

Glenn George
Applications Architect
Texas Children's Hospital

Results at a glance

$14M
Annual savings on Factor VII & VIII despite 30% higher usage

80%
Reduction in drug tracking steps

24/7
Continuous visibility into inventory value, location and expiry

Background

Drug inventory management at Texas Children's Hospital was largely dependent on manual, error-prone processes, as it is in most U.S. health systems and hospitals. While the pharmacy used automated dispensing cabinets (ADC) and carousels for management of some drug products, the quantity and expiry status of others stored on shelves, in refrigerators and in emergency caches could only be monitored by someone physically locating, counting and documenting them — if they could find them at all.

Gee Mathen, director, pharmacy application and technical services, TCH, spoke to the 12-step manual tracking process used by pharmacy technicians when an inventory count was required.

"A technician would go out, count items and estimate what needed replacing," said Mathen. "But we quickly saw that human variability created inconsistent inventory levels. Orders were often placed based on perception of what was on the shelves rather than what was actually there."

Even when counts were performed accurately, they often failed to account for expiration dates. As a result, expired products were mistakenly treated as usable inventory, and when quick information was needed, staff rarely had time to verify each item's expiration status.

Together, these issues left the pharmacy team with unreliable information on TCH's drug inventory. Limited visibility, distrust in manual processes, and a "never let stock run out" mentality fueled over-ordering, widespread product expiration and increased risk for diversion.

A $40 million turning point

During an internal inventory count, Mathen discovered the value of TCH's drug stock was priced much higher than the previous year. To investigate the discrepancy, he and Applications Architect Glenn George asked TCH's Epic Willow team to monitor the 30 highest-cost medications for 90 days — tracking purchases, distributions and on-shelf inventory.

"When the team presented their three-month findings, it was clear our checkbook didn't balance — products were missing, and others were overstocked without reason," said Mathen. "Extrapolating the data against our budget, we found $40M in drug inventory unaccounted for, nearly 10% of our annual spend."

> *"Any hospital pharmacy can say they know where their drugs are — we can actually show you. We urge our peers to track their inventory along with us, so nobody is overordering and preventing others from getting the medications they need."*

Gee Mathen
Director, Pharmacy Application and Technical Services
Texas Children's Hospital

Factors driving the need for change:

$400M
Annual pharmaceutical spend

$40M
Lost annually from expired drugs, diversion and mismanagement

12-step
Manual tracking process

One root cause of the issue was frequent “re-dispenses,” where the pharmacy team could not confirm if a patient had been administered the medication. In those cases, TCH was dispensing a drug product twice but only billing and receiving payment for one dose.

“We’re so focused on taking care of the patient that we forget there is fiscal accountability in what we do,” said Mathen. “We just didn’t have the technology or workflows in place to ensure we were managing our drug assets responsibly. If you don’t have visibility, the truth will never exist.”

Opportunity

What had long been accepted as an unavoidable expense in pharmacy operations became a multimillion-dollar opportunity. With the right visibility and control, TCH’s pharmacy could become a force for financial accountability and improved margins.

TCH VP, Pharmacy Operations Jeff Wagner, PharmD, along with Mathen and George, identified three key objectives:

- Replace manual counts with automated, accurate visibility
- Eliminate multimillion-dollar waste from expired and diverted medications
- Establish confidence in pharmacy inventory data as the foundation for compliance, safety and financial stewardship

The solution

TCH needed a holistic technology solution with the power to bridge standalone systems (ADCs, carousels) and bring real-time visibility and control to drug products in all storage locations. The ideal solution would automate tracking of drug products, including expiry dates, from the time of receipt through patient administration.

“We knew RFID was being used in pharmacy, mostly for kit and tray preparation, but existing solutions didn’t address inventory management in general pharmacy areas,” said Wagner. “We found ourselves hunting for a solution and questioning whether we could create it.”

Then TCH’s VP of Supply Chain & Environmental Services Mike Brown shared with Wagner the work his team was doing with Tecsys on the medical/surgical supply side for inventory oversight.

This included the integration of Tecsys’ Elite™ Point of Use (POU) solution with TCH’s enterprise resource planning (ERP) and electronic health record (EHR) systems, and the use of Zebra RFID hardware and Terso RFID-enabled cabinets for automated supply data capture, end-to-end tracking and continuous oversight.

Making the vision a reality

Guided by Wagner, Mathen and George's vision, Tecsys worked side-by-side with them to design, build and integrate the right workflows between Tecsys' Elite™ Healthcare POU solution, Zebra RFID hardware and Terso RFID-enabled cabinets.

This provides the ability for the TCH pharmacy team to see, track and manage every high-value drug in motion from the moment it is received until the moment it is administered at the patient bedside.

"Because Tecsys' solution interfaces with everything — our electronic medical record (EMR) system, ADCs, carousels, Terso's cabinets and Zebra's RFID hardware — we have a chain of custody throughout the whole flow. We can track who touched a drug product, when it got used, where it got used, and whether it was diverted," said George.

TCH's drug inventory management infrastructure:

- RFID-enabled cabinets and portals integrated directly into Tecsys
- Real-time tracking software with mobile and dashboard access
- Automated workflows that replace manual inventory steps
- Epic Willow integration for end-to-end patient care and billing visibility

> *"I would challenge any pharmacy executive whether they can say with 100% confidence how much inventory they have on their shelves and whether it's all within date. You know what you've purchased, you know what's been dispensed and you know what you've sent to an expired distributor – but where's the rest?"*

Jeff Wagner, PharmD
Vice President, Pharmacy Operations, Specialty Pharmacy and Respiratory Therapy Care and ECMO
Texas Children's Hospital

TCH's technology trifecta

THE ENABLER

ZEBRA

Zebra supplied the RFID printers, scanners and mobile devices that connect frontline workflows to Tecsys. Their reliable hardware ensures accurate encoding and seamless data capture, making RFID practical and dependable in daily pharmacy operations.

THE BACKBONE

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TCH deployed Tecsys' Elite™ Healthcare POU solution, enabling real-time drug tracking from receipt to bedside administration. The system integrates seamlessly with Epic Willow to support both patient care and billing.

THE SECURE STORAGE

TERSO SOLUTIONS

RFID-enabled cabinets and refrigerators from Terso provide automated cycle counts and near-100% read accuracy. With every open and close, Tecsys captures item movements and maintains a continuous, closed-loop chain of custody.

How the new system works

At Texas Children's Hospital, every drug is RFID-tagged upon receipt and tracked end-to-end through Tecsys' Elite™ Healthcare POU solution. From storage in Terso RFID-enabled cabinets to retrieval, delivery and bedside administration, each movement is recorded to create a complete chain of custody.

Barcode scans at the bedside confirm the drug, patient and clinician, while integration with Epic Willow ensures accurate billing. The result is a closed-loop record that provides pharmacy leaders with real-time insight into what's in stock, where it's located and how it's being used.

"Tecsys gives us visibility into the true cost of our inventory, down to each individual product, along with upcoming expirations," said Mathen. "In the past, items would simply expire on the shelf unnoticed. Now we proactively track expirations and move products to high-use areas, preventing waste instead of discovering it after the fact."

Outcomes

By transforming pharmacy into a fully visible, data-driven operation, TCH has streamlined workflows, strengthened accountability and delivered multimillion-dollar savings that can be reinvested in patient care. What once represented a fixed expense has become a lever for cost containment, margin growth and system-wide resilience.

TCH achievements with Tecsys

- 12-step manual process reduced to two steps (label + RFID tag)
- 7-second average time to RFID tag a drug product
- $14 million annual savings on Factor VII and VIII products, despite 30% higher usage
- 24/7 access to live inventory data (location, value, expiry) via desktop and mobile devices
- Chain of custody visibility from receipt to bedside administration
- Proactive waste prevention through expiry date tracking and stock reallocation

> *"Within the Tecsys dashboard, pharmacy leaders and staff can see live data on every drug — its location, value and expiration status."*

Glenn George
Applications Architect
Texas Children's Hospital

Strategic impact

Shifted from reactive to **proactive inventory management**

Reallocated millions in savings **toward patient care initiatives**

Positioned itself as a national **leader in pharmacy innovation** and pediatric care

The power of visibility was evidenced by the team as they recounted a $1 million+ loss that occurred prior to Tecsys solution implementation.

A pharmacist who was scheduled to work on a weekend moved a high-cost drug product valued at more than $1 million to a different location for ease of accessibility during their shift. Subsequently, they didn't have to work that weekend — or use the drug — so the item sat where it was placed, hidden behind some other drugs.

By the time the TCH pharmacy team conducted an inventory count and found the drug, it had expired. In Mathen's words, "a little over $1 million was just thrown in the trash."

"If we had the Tecsys solution with RFID tagging and tracking in place at the time, we would have known the pharmacist removed the drug from its storage location," Mathen explained. "Furthermore, using an RFID wand, we could have scanned the facility and found the drug before it had expired."

Drug spend reduction

Use of the Tecsys solution at TCH's satellite pharmacy for high-dollar items ($250 or greater value) resulted in a $14 million annual savings on Factor VII and Factor VIII products, even though the hospital used 30% more of these products than it had the previous year.

"Let that sink in," said Mathen. "We use more but purchase less. That is purely because of the visibility we have now. Our pharmacists monitor usage, and our technicians perform audits, enabling them to use existing stock more effectively. The $14 million is an immediate return on investment for us because we would have purchased $14 million more of those products had we not had Tecsys in place."

TCH is also purchasing more of its drug products at CMS 340B Drug Pricing versus more costly wholesale acquisition cost (WAC) and group purchasing organization (GPO) pricing.

$1M

A $1 million loss that could have been prevented

Productivity and efficiency gains

Through process automation and continuous transparency, TCH has reduced its inventory workflow from 12 steps down to two (label and RFID tag). RFID tagging of a drug product takes an average of seven seconds — with technicians performing this step, freeing pharmacists from manual work.

Whereas before pharmacy staff members spent hours performing manual inventory counts, today a count takes only seconds. The RFID-enabled Terso cabinets perform automated cycle counts of their contents each time they are opened and closed with the data flowing into the Tecsys solution. For drugs stored in other areas, TCH technicians use a mobile RFID reader or "wand" to perform cycle counts – a simple wave around the room captures up-to-the-moment drug status in Tecsys.

Visibility

The TCH pharmacy team has live insights into all RFID tagged drug inventory at the item level through the Tecsys dashboard, including quantity on hand, stocked drug asset value and expiration dates. They can access the dashboard 24/7 through both desktop and mobile devices.

With the ability to see exactly what is in stock and where it is located, TCH's pharmacists can feel confident that the therapies required for patient care are available to them. Visibility to inventory also minimizes diversion risk and ensures compliance.

Waste prevention

With the ability to store expiration dates, the RFID tags communicate to the Tecsys solution how many days remain until a drug's expiry. The TCH pharmacy team leverages this information to maximize use of their drug assets and avoid waste, reallocating items to high-use sites before they reach expiry.

Continuous tracking and control of drugs — from receipt through use — also prevents re-dispenses. Pharmacists know when a drug is administered to a patient and can bill for it. Accountability in drug administration reduces waste while increased charge capture equals greater revenue for the hospital.

"In most health systems, pharmacy used to be more of a cost center, but now it's a margin center driven largely by specialty and high-cost drugs," said Wagner. "If we can buy only what we need, ensure we are administering it to patients, and keep stock in date and on hand in appropriate quantities, it positively impacts so many of our metrics."

> *"Our pharmacists love it and we're starting to build trust in clinical areas. And we're building trust with our patients by having the drugs they need on hand when they need them."*

Gee Mathen
Director, Pharmacy Application and Technical Services
Texas Children's Hospital

Future vision

With Tecsys as its foundational transformation technology, Wagner, Mathen and George are working to extend the capabilities and performance of TCH's pharmacy operations and pursue opportunities to strengthen pediatric care delivery on a broader scale.

Key initiatives include:

- Expanding RFID tracking to controlled substances
- Integrating robotics for autonomous cycle counts
- Collaborating with national pediatric oncology drug-sharing networks to address shortages
- Adopting next-generation Zebra tags with temperature sensitivity and tamper-proof features for greater drug safety

Wagner noted that visibility into on-hand drug quantities not only strengthens operations within TCH but also opens the door to greater collaboration across healthcare. By knowing when one facility has adequate supply while another faces a shortage, hospitals could better share limited resources.

TCH's work can be viewed as a model of pharmacy inventory innovation — one that could set the standard for pediatric care and beyond. As Wagner stated, "there's probably incredible value to expand this across the entire industry."

About **Tecsys**

Since our founding in 1983, so much has changed in supply chain technology. But one thing has remained consistent across industries, geographies and decades — by transforming their supply chains, good organizations can become great.

Our solutions and services create clarity from operational complexity with end-to-end supply chain visibility. Our customers reduce operating costs, improve customer service and uncover optimization opportunities.

We believe that visionary organizations should have the opportunity to thrive. And they should not have to sacrifice their core values and principles as they grow. Our approach to supply chain transformation enables growing organizations to realize their aspirations.

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