



WHITE PAPER

# Hidden Costs of Logistics in Healthcare

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# Overview

Logistics is an area of significant cost and waste in healthcare, but most hospitals and health systems are unaware that they are losing millions annually in easily avoided expenses. In addition, proper management in the movement of healthcare goods have a significant role in reducing risks to patient outcome, satisfying drug tracking regulations and eliminating liability due to breaches of patient privacy. Top performing healthcare organizations take a proactive stance in managing their logistics with a well considered, cohesive plan that manages all the movement of goods throughout the entire network of healthcare facilities.

Emerging issues such as regionalization of care, commercialization of hospital services and increasing service level expectations all require a health system to provide high quality logistics services in increasing complexity and volume. While logistics is growing in importance, most healthcare organizations are completely unprepared for this trend.

In today's environment, where healthcare organizations are facing declining revenues and reimbursements, coupled with pressures to improve quality of care, they can no longer turn a blind eye to the hidden cost of logistics. Healthcare industry leaders, such as Intermountain Healthcare and ROI (Resource Optimization & Innovation), have demonstrated how a strategic, holistic approach to logistics management, featuring standardized processes and electronic tracking, can cut costs, improve operational efficiency and enhance patient care quality.

**In this paper, we examine the current state of healthcare logistics, the challenges and risks organizations face, and the benefits that can be derived from centralizing service item management and transportation. With insights from Intermountain's Business Applications Manager Matt Jensen and ROI's Director of Transportation Services Erik Lawson, we describe how any size healthcare organization can take steps today to gain control over this area of tremendous complexity and cost.**

**Contributors: Matt Jensen, Business Applications Manager for Intermountain Healthcare, and Erik Lawson, Director of Transportation Services for ROi**

With several years of experience in healthcare logistics, Erik Lawson is a recognized thought leader and expert in the field of healthcare logistics. ROi (Resource Optimization & Innovation) is the supply chain arm of Mercy, one of the nation's largest non-profit healthcare systems. Through its strategic approach to supply chain, ROi has delivered more than \$1 billion in savings to Mercy and has helped other providers transform their supply chain into a strategic asset for cost savings. In his role at ROi, Lawson manages one of the country's largest provider-owned healthcare transportation fleets, with more than 125 vehicles servicing nearly 2,000 locations. He is responsible for 23 clinical service areas throughout Mercy's 45 hospitals, which are spread across five states.

With over 10 years of supply chain systems experience, Matt Jensen is known throughout the industry for his focus on continual process improvements. Intermountain Healthcare is the largest healthcare provider in the Intermountain West, with 38,000 employees serving the healthcare needs of people in Utah, southeastern Idaho and surrounding areas. Jensen, along with several others, was responsible for the implementation and oversight of Intermountain's warehouse management system and other various logistics systems. Jensen and his team have also developed and implemented numerous strategic logistics initiatives, including an electronic Kanban program, pick accuracy by weight and a visual voice directed picking model.

# The Logistics Landscape in Healthcare

Stop and consider the volume and variety of items that move around a health system every day. When most individuals think about this topic, their first thought is on supply chain goods, such as medical surgical supplies and pharmaceuticals, including items that are warehoused and those that are non-stock. Health systems often use a central warehouse as a distribution hub to help manage their supply chain logistics more efficiently and cost effectively.

While this is a good start, supply chain goods account for only 20 percent of the volume of items in motion around a health system. They are missing a much larger, more complex and costly area of logistics. On average, 80 percent of a health system's logistics volume is comprised of hospital and clinical items that have nothing to do with supply chain but are used by services performed within the clinical environment. These "clinical service items" include biohazards, food trays, IT equipment, lab supplies, linen and laundry, patient specimens, records, print shop, mail and so forth. Approximately 95 percent of a health system's logistics dollars are spent on managing these non-warehoused items.

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All areas of logistics are complex – from moving a bed to moving a bed pan," said Erik Lawson, ROI's Director of Transportation Services.

**"We as a transportation team offer 23 services in this area, from transporting sterile instrument sets for surgery to transporting laundry. We are responsible for all of these services from both a patient care and a regulatory perspective."**





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“One of the things people don’t recognize when we talk about healthcare is how much logistics plays a part in patient care. If your logistics network has holes or is the weak link in the chain, it’s going to affect overall outcomes for any healthcare organization. What we’ve found at Intermountain is that when we put emphasis on our supply chain we have better outcomes all around.”

Matt Jensen  
*Business Applications Manager*  
*Intermountain Healthcare*

# What You Don't Know CAN Hurt You

**As Lawson points out – “what you don't know can hurt you” when it comes to service item logistics.**

He states: “Healthcare organizations typically don't see value in this area because you don't know what you don't know,” said Lawson. “If things are going well in your eyes, then you don't understand the impact. And if you don't pay attention, then you don't have measurable results. It's not anyone's fault, it's just the way it's always been done. There's the attitude of ‘I don't need to know about it or focus on it.’ But in reality you do.”

“With clinical service items, there's always a middle person for logistics and potentially another who is managing storage,” continued Lawson. “Costs and margins build up with each third party - everybody is going to make a profit at your expense. If you think of all of the different areas that can be touched in logistics, it blows you away.”

And it is not just cost. Mismanagement of service item logistics can result in noncompliance with government regulations, including the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule aimed at protecting “the privacy of patients' medical records and other health information maintained by covered entities,” which includes “most doctors, hospitals and many other health care providers and health care clearinghouses.”

It can also impact patient satisfaction, which has gained far greater importance since the Centers for Medicare & Medicaid Services' (CMS) introduction of Hospital Value-Based Purchasing (VBP). Under this program, CMS links reimbursements to the quality of care delivered for inpatient stays in over 3,500 hospitals across the country.<sup>1</sup>

“When you think about a patient going to the doctor or visiting a hospital, typically it's one of the most vulnerable moments of his/her life,” said Jensen. “If the healthcare provider does anything to jeopardize that patient's trust in their healthcare institution – whether it's a specimen gone bad or lost health records – it's very hard to win that trust back. Therefore it's critical for healthcare organizations to put emphasis on their logistics network.”

## **Why is the Process So Complex and Costly?**

**Local supply chains have a problem – it costs way too much and it is far too complex to move clinical service items between hospitals, clinics and service centers, and there is little or no control over the movement of these items.**

**Within most health systems, clinical service item logistics are usually planned and managed at a departmental level, with different departments in different facilities using different vendors and processes each with their own contracts, cost of services and middlemen. No enterprise-wide visibility into this area of logistics and no consolidation of planning results in duplicative efforts, added costs and patient safety risks.**

1. <http://www.hhs.gov/hipaa/for-professionals/compliance-enforcement/data/enforcement-highlights/index.html>

# Major Areas of Risk

## Mismanagement/mishandling of patient specimens

The management of patient specimens (e.g. blood, tissue, urine) presents a wide range of risk to health systems. When there is no visibility into/control over the transport of these items (e.g. from a clinic to a lab), there is no way to ensure drivers are picking up specimens in a timely manner or keeping them at an appropriate temperature during transport to prevent spoilage. Without electronic tracking in place, there is also the risk that samples will be lost during transport. Another consideration is the risk of noncompliance with U.S. Department of Transportation (DOT) regulations around the transport of hazardous materials (e.g. infectious substances).

Lost or compromised specimens have significant patient implications, such as a patient having to wait an extended time for their test results or having to return to a facility for a retest. This is not only inconvenient for the patient, but also adds costs. The inconvenience/cost factor is bad enough for blood or urine specimens, and can skyrocket in the case of complex biopsies and other tissue collection methods.

## Mismanagement/mishandling of patient medical records

Breaches of medical files, billing and insurance records have exploded in recent years and experts predict they will continue to grow because of the high price thieves can command for this information on the black market. In its 2016 Data Breach Industry Forecast, Experian reports that 91 percent of all healthcare organizations reported at least one data breach over the last two years. The report notes:

“While large breaches may be compromising millions of people’s records in one fell swoop, smaller incidents caused by employee negligence will also continue to compromise millions of records each year. These incidents are often due to employees mishandling paper records or losing physical back-up of information.”

With this in mind, the mismanagement/mishandling of medical records and documents containing patient protected health information (PHI) during transport poses considerable risk to healthcare organizations in terms of noncompliance with the HIPAA rule, related fines, public scrutiny and decreased patient satisfaction.

Not to mention the direct impact on the patient. When records do not arrive at a facility on time, not only is there the inconvenience factor to the patient, but also increased risk for errors when clinicians do not have access to a patient’s up-to-date health information (e.g. medical history, current medications). Furthermore, PHI breaches have far-reaching implications to a patient’s privacy and security (e.g. identity theft, financial losses) depending upon the nature of the breached information.

## Pharmaceutical chain of custody challenges

As the healthcare industry works to enhance all aspects of patient safety, there has been movement on the federal and state level to protect patients from compromised or counterfeit drugs that result from supply chain failures. For example, the U.S. Food and Drug Administration's (FDA) Drug Supply Chain Security Act (DSCSA) is aimed at building an "electronic, interoperable system to identify and trace certain prescription drugs as they are distributed in the United States." The rule states: "Drug manufacturers, wholesale drug distributors, repackagers, and many dispensers (primarily pharmacies) will be called on to work in cooperation with FDA to develop the new system over the next 10 years."

Health systems that cannot track drug products from point to point within states and across state borders not only compromise patient safety but also run the risk of noncompliance with emerging regulations. With requirements for a federally mandated electronic track and trace system on the horizon, it is in a healthcare organization's best interest to gain visibility into/control over its clinical service item logistics today.

## Medical/lab/IT equipment management

Health systems invest heavily in a broad range of items that must be transported within their local supply chain – both within and between facilities – such as medical, lab and IT equipment. When a health system has no visibility into where these items reside within facilities or across the organization, it is a significant challenge to locate them and transport them to where they are needed. This results in added time and labor, which increases costs and can negatively impact patient care. In many cases, health systems bear the burden of excess inventory, including upfront purchase costs, as well as maintenance and storage of these products. In the case of IT equipment that contains sensitive patient information, they also face the serious issue of PHI breaches.



# Stolen Laptops Present Major Risks

The mismanagement of used IT equipment, including laptops, is a significant source of healthcare data breaches. Proper planning and logistics management of the chain of custody of used IT equipment is often a serious area of liability in a health system.

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For example:

- In January 2016, theft of a laptop from Premier Healthcare's Billing Department, a Bloomington based physician-led multispecialty provider healthcare group, affected over 200,000 patients.\*
- In March 2016, theft of a laptop from a doctor's office in the Imperial Valley Family Care Medical Group\*\* led to the loss of protected health information, including names, addresses, dates of birth, health information and Social Security numbers.
- In December 2015, theft of a laptop belonging to an employee of Valley Hope Association, a Kansas-based non-profit that provides drug and alcohol addiction treatment, resulted in the theft of 52,076 patient records.\*\*\*
- Since 2010, 68 percent of all healthcare data breaches have been due to device theft or loss.\*\*\*\*

## How are you managing the logistics of used equipment?

\* Premier Healthcare reports possible data breach after laptop is stolen, WTTV, March 8, 2016

\*\* Hackers Access EHR Data in Potential Healthcare Data Breach, Health IT Security, May 19, 2016

\*\*\* Stolen Laptop Leads to Possible Healthcare Data Breach in KS, Health IT Security, March 9, 2016

\*\*\*\* 68% of Healthcare Data Breaches Due to Device Loss or Theft, Not Hacking, HIT Consultant, November 4, 2014

# There is a Solution

**Complexity is inherent to clinical service item logistics. The only way to overcome this complexity, gain visibility into the challenges and take control is through the application of technology.**

Today some health systems have technology solutions to manage stocked and non-stocked goods but most have nothing to manage clinical service item logistics. And while some may have a system to manage these goods inside the hospital, most have nothing to manage them in remote locations, regional clinics or associated practices.

Leading healthcare organizations, such as Intermountain and ROi, are moving to a consolidated approach where all of their logistics are managed within a single platform and system. Using this type of solution, they have established a source of logistics truth throughout their enterprise. With a cohesive logistics plan that manages all the goods in motion, health systems gain visibility, security and efficiency.

When you think of logistics leaders within the healthcare industry and the transparency they provide to customers, it's second to none from gaining visibility into where items are within the network to improving the process of getting an item from point A to point B," said Jensen.

**"All healthcare organizations have the opportunity to improve patient outcomes through greater logistics transparency, regardless of their size."**

# What to Look For in a Solution

Clinical service item logistics presents a very unique set of challenges. Therefore it requires a solution specifically tailored to it. When evaluating available solutions, a health system or hospital should look for the following capabilities and features.

## Healthcare-focused

The solution should have been conceived, developed and deployed specifically and exclusively for the healthcare industry, exactly responding to the unique needs of the delivery networks of hospitals and health systems. It should include specific accountability and security requirements needed to manage hospital and health system transportation networks.

Recognizing there are many different parties involved in healthcare logistics (clinicians, supply chain, transport), the solution should offer features tailored specifically for each logistics role within a health system, leading to world-class customer service and world-class patient care.

## Quick to implement but able to grow

Because each individual healthcare organization has its own set of challenges and priorities for logistics management, the solution should suit healthcare transportation operations of any volume or complexity, and require minimal user training. It should be quickly and easily adoptable, in simple step-by-step phases, each building on the previous and each providing value on day one of the implementation. This allows health systems and hospitals to build toward world-class transportation performance at their own pace.

## A comprehensive, end-to-end solution

Healthcare logistics has a far reach – both within the walls of a healthcare organization and beyond. It touches and is touched by numerous departments and individuals. Therefore, a technology solution must effectively address every link in the logistics chain. Missing even one key player or component opens the door for significant risk.

# A Solution **Should Include**

## **Delivery Tracking**

Simple and intuitive tracking of all deliveries, all pickups and all the goods that are in motion around the entire hospital and health system. Chain of command visibility that builds security and reliability throughout the organization's delivery network, and provide tools to optimize and evolve logistics activities as the organization requires it.

## **Dock Control**

Manage receipts, cross-docks, sortation and loading of logistics in the warehouse, but more importantly, in the hospitals.

## **Driver Management**

Provide the driver and distribution tech with the detailed information that they need to be 100% perfect on every delivery, every time. Tell the dispatcher where all the drivers are, if they are on-time and if they performed all the scheduled tasks at each and every stop along their route.

## **Courier Dispatch Management**

Secure and responsive courier dispatch management, integrating both routed delivery and stat or on-demand driver services, with both tasks centrally monitored and managed through operational and tactical dashboards. Leveraging existing routed drivers through dispatching, stat pickups, sequenced pickups and delivery service options, can lower dispatched service costs dramatically while offering substantial customer service improvements.

## **Common Carrier**

Centrally manage common carrier services for all customers allowing a healthcare organization to negotiate improved carrier rates with big carriers like FedEx and UPS with a complete picture of volumes, generating significant savings in common carrier costs.

## **Home Health**

As the healthcare industry further extends its reach beyond traditional care environments, the solution must be built on a platform that is well-equipped to satisfy industry needs, including emerging trends in home healthcare.

# Benefits of This Approach

## Enhance Patient Care Delivery

Improve service levels to meet your customer expectations and increase capacity through improved efficiencies while reducing your cost to serve; ensure service items are where they need to be when they need to be there.

## Gain Visibility

Get a clear line of sight into a significant area of cost for your organization across your enterprise so you can implement meaningful/impactful change.

## Take Control

Instead of reacting to issues that arise from logistical challenges, proactively ensure quality service levels, head off areas where issues are developing and understand the impact of changes to the delivery network before they occur.

## Boost Operational Efficiency

Consolidate delivery services/processes, perform fleet and route rationalization, eliminate redundancies and rework. Understand tactically what is going on in your operations and eliminate duplication of effort through consolidation of services.

## Cut Costs

Consolidate multiple logistics vendors/services/contracts into a single cohesive operation across your organization. Understand the real cost of logistics in every part of the health system.

## Reduce Risk

Enforce health system best business practices and facilitate compliance with government regulations (e.g. HIPAA, drug chain of custody).

## Achieve Continual Improvements

Manage your level of service against standards and understand trends in activity, cost, performance and compliance.

# Where Do I Start?

Not all health systems are logistical experts and many are still building best practices that lead to a world-class logistics operation. Here are five steps recommended by Lawson and Jensen you can take today to improve your service item logistics.

## Engage Key Stakeholders

Gain visibility: Get a clear line of sight into a significant area of cost. Start by having discussions with key stakeholders to identify your biggest logistical pain points. Be sure to include all of those who “touch” service goods – individuals in operations, supply chain, department leaders, etc.

Lawson emphasizes the need to engage clinicians in discussions related to logistical improvements, explaining how his team works closely with both individual clinicians and doctors groups.

“Get clinicians on board and get their feedback to make sure you are heading down the right path and driving value,” he said. “That’s always a struggle because everyone is busy but you have to include everyone who is part of a logistical process.”

## Start Small

Don’t try to “boil the ocean” when it comes to logistical improvements. Develop a potential action item list then take from that list your priorities and/or low hanging fruit. You may start with just supply chain from the warehouse or just managed deliveries inside the hospital or perhaps courier deliveries for your lab, but over time you can grow and expand to create a single cohesive well planned logistics strategy for all the goods in motion around the health system.

“By starting small you can get a few successes under your belt before moving onto more complex tasks,” said Lawson. “Once you’ve achieved two or three successful improvements all of a sudden stakeholders’ eyes open up and everyone realizes it was reasonably easy to do.”

“The expectation among many clinicians is they have the right product at the right place at the right time and they don’t care how,” said Jensen.

**“Logistics is one of the least thought of things because it doesn’t have that direct patient interaction. But when logistics are poorly managed, it adds costs for patients, leads to less standardization and results in less than desirable outcomes.”**

“Look at your logistics network as a whole, identify your biggest areas for opportunity, prioritize them and then grow from there,” said Jensen.

**“Take those baby steps so you can begin to strive for a world-class supply chain organization.”**

## Demonstrate ROI

To gain buy-in from the C-suite and the resources you need, you must be able to demonstrate potential cost savings from your logistics activities. You can do this by presenting examples and evidence from other healthcare organizations that have successfully overcome similar challenges.

“Tackling logistics is all about cost avoidance and driving savings and value,” said Lawson. “Point to other organizations that have succeeded in this area, such as Mercy, to provide proof there is value and cost savings in centralizing and streamlining logistics.”

## Implement the Right Technology

As Lawson points out, systems are a major component of logistics so it is important to have the right technology in place. To achieve success you must move from manual to electronic processes and leverage automation to streamline your operations, gain visibility and take control on an enterprise-wide level.

“We engaged our solutions supplier early on to help drive us in the right direction,” said Lawson. “We know what we want to achieve logistically, but from a technology and systems standpoint they are the ones building the solutions for us. We continue to move away from manual processes, which are inefficient and costly, to an electronic and automated approach that will enable us to gain full visibility into our operations. Visibility to information will drive greater value. It’s been very exciting.”

**“If cost is an issue then identify things in house, or things with little to no cost you can implement to create a logistics network that better serves patient outcomes,”** said Jensen.

“Using a technology solution to help manage the pick-up and delivery of patient specimens, we’ve been able to uncover issues before they negatively impact patient care,” said Jensen.

**“This has not only improved our clinical service item management but also boosts patient trust and satisfaction with our organization.”**

## Don't Be Afraid to Ask for Help

All healthcare organizations are struggling with the same logistical challenges, regardless of size or location. Each one is at a different stage of the journey – some have not even thought about logistics, others are just starting down the path, still others have made tremendous strides in this area.

Look to healthcare organizations that have successfully tackled their logistical challenges and start collaborating with them to brainstorm ideas/explore options. Also leveraging your strategic partnership with your technology solutions provider, which has worked with other organizations on similar challenges, can offer best practices and help you avoid potential pitfalls.

“When you think of the complete supply chain, there are many opportunities to develop and drive value,” said Lawson. “To minimize the ‘oh my gosh this is a huge project’ aspect, look to us at ROi or another organization that is doing extremely well in this area. Find strategic partners with which you can collaborate, share ideas and learn best practices.”

“And don't be afraid to fail,”  
said Jensen.

**“Some of our greatest wins  
have come directly after  
failures. As I tell my team,  
if we are going to fail then  
let's do it and fail fast so  
that we can learn from  
it, grow and get to that  
end point we are trying to  
achieve.”**



## Case in Point: **ROi (Resource Optimization & Innovation)**

Founded more than a decade ago by Mercy, ROi is a recognized leader in healthcare supply chain management through its vertically integrated supply chain model. As a provider-owned Accountable Supply Chain Organization, ROi now serves fellow providers across the country that share a passion for supply chain excellence. Through ROi, Mercy is the only provider to be ranked in the Top 10 of the Gartner Healthcare Supply Chain 25 for seven consecutive years.

ROi's Director of Transportation Services Erik Lawson and his team have leveraged a consolidated approach to manage service item logistics for Mercy, which is one of the largest non-profit healthcare systems in the U.S.

### **Item Tracking**

With a single, consolidated and streamlined approach to logistics management, ROi can track patient information, specimens and clinical service products/equipment. The organization has proof of pickup and delivery, and a time stamp of that item at any point in time wherever that item is located.

### **Package Creation and Pickup**

Patient care locations can use the solution to create packages and alert ROi to when the package must be picked up. This offers ROi visibility into service items across its enterprise – including remote clinics – for more timely and efficient transport.

### **Route Creation and Management**

Within its solution, ROi can build delivery routes to improve workflow – both inside and outside of facilities. For example, if a driver is delivering to a location where the typical entrance is closed because of construction or another issue, ROi can alert the driver and offer an alternate route for delivery, such as to a secondary entrance. According to Lawson, this minimizes the risk that items will not get delivered or get lost, which could compromise patient care.

### **Dispatching Tool**

Another challenge ROi faces with service item logistics is facilities calling or faxing in same day requests for item transport. The organization is working with its solutions provider to develop a dispatching tool that will enable facilities to submit pick up/delivery requests via a robust web-based portal, for one hour, two hour, same day and next day service requests.

**"It's all about standardization of processes. The technology is helping us drive efficiency by moving away from manual processes and paperwork, which ultimately impacts our patient care and promotes standard of work."**

**Erik Lawson**  
*Director of Transportation Services, ROi*



## Case in Point: Intermountain Healthcare

Ranked #3 by Gartner in its 2015 Healthcare Supply Chain Top 25 ranking, Intermountain Healthcare is a recognized leader in healthcare supply chain and logistics innovation. Intermountain's Business Applications Manager Matt Jensen explains how he and his team strive to implement solutions that drive visibility and transparency through the organization's logistics network.

"It goes back to this whole idea of leading indicators versus lagging metrics," said Jensen. "It's typical in healthcare to have data from the past. For example, how many patients did we affect negatively through our logistics network and how can we improve on that? Instead of focusing on things that have happened we are taking that data and turning it into leading indicators that tell us when something negative could possibly happen. And then we make sure to put more emphasis in areas of vulnerability to try to reduce the negative outcomes."

### Zero Harm Lockbox Initiative

One example of this proactive approach to clinical service item management is Intermountain's Zero Harm Lockbox Initiative. The organization uses a courier service to pick up patient specimens from lockboxes across its 22 hospitals and more than 185 clinics. In the past, there were instances where a specimen was missed by the courier, which led to the patient having to go back to a facility to have it redrawn. As Jensen points out, this not only causes "undue process to the patient" but also jeopardizes the patient's trust in the institution.

To overcome this challenge, Jensen and his team are leveraging technology to gain visibility into and control over courier pick-ups. The solution looks for stops that are at risk for courier oversight and then does a check to ensure the courier has visited those lockboxes. If a pick-up location has not been visited within a certain timeframe, the system issues an alert.

**"Since implementing this solution we've had a number of instances where we've been able to catch potential issues before they could impact the patient."**

**Matt Jensen**  
*Business Applications  
Manager, Intermountain  
Healthcare*

## 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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