



Lean Healthcare

How to use technology to eliminate waste and lower the cost of healthcare

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Overview

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Today's Healthcare environment is facing tremendous pressure to evolve. Every healthcare organization is trying to increase efficiency, drive up patient satisfaction scores, control costs, and cut the amount of time administrators spend managing the process of patient care. This has led to the lean healthcare movement, but a lean healthcare strategy, by itself, is not enough.

Institutions need to equip themselves with the infrastructure and systems to monitor, measure, and manage processes. Lean principles, when combined with technology tools, can drive effective change throughout healthcare. In hospital environments, technologies such as location services and business intelligence are mission critical assets. When used properly, it can revolutionize your processes, workflows, staff's productivity, your bottom-line, and ultimately the patient experience.

In this white paper, we will walk you through what lean healthcare means, and by examining several use cases, what you can actually do when you combine the right technology solutions with a lean healthcare strategy.

What Does Lean Healthcare Mean?

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Lean healthcare is simply a strategy where the goal of the hospital is to create value by eliminating waste. Value from going lean comes in many different forms in healthcare, from eliminating inefficient manual processes, to eliminating waste and/or excess products.

There are seven different types of waste in lean healthcare:

- **Over-Production** - Producing product earlier or in greater quantities than is currently needed. Examples include: Often times PAR tracked equipment items get replenished too early or with too many in certain locations than what's actually needed. Other examples included: delayed discharges, and performing unnecessary diagnostic procedures.
- **Over-Processing** - Doing more work than is needed or performing unnecessary steps when processing information or products. This could mean excess communications from staff to supply chain, or acting on outdated information from manual processes.
- **Waiting** - Waiting on information or products when your time could be better spent doing something productive. This is one of the biggest forms of waste in healthcare today. Examples include: Clinical staff not having the right equipment in the right place for the patient, waiting to get called back about an open bed, waiting for a screen to load, or even patients waiting to be seen.
- **Excess Motion** - Any motion or movement that staff or even patients have to do that doesn't add value in a given process. For example, staff walking into clean or soiled utility rooms to verify PAR levels only to find nothing needs to be done or there is more product than necessary. Another common scenario is tracking down/looking for materials or equipment.

What Does Lean Healthcare Mean?

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- **Defects** - The time spent doing something incorrectly, going back to fix errors, and the cost associated with inspections (soft costs). These could be: duplicate MRNs, the correct labs not being ordered, misdiagnoses, missing items on a surgical cart etc.
- **Inventory** - This is another form of waste that is common, consisting of excess inventory, storage and movement costs, materials expiring, not enough products or materials, as well as damaged equipment.
- **Transportation** - Unnecessary movement of patients or materials from room to room, building to building, hospital to hospital or even from system to system. This includes: moving patients from one department to another, poor hospital design or layout, and the inefficient movement of information.

Now that you understand what lean is and what the seven forms of waste are, let's take a look at how technology is helping to drive lean healthcare forward and the results current lean hospitals are starting to experience.

Seeing Results: Use Case Number 1

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Using an intelligence management platform, real-time location system and a new unified communications system at the core of their new lean strategy, Butler Health Systems (BHS) in Butler, PA has seen dramatic improvements in multiple mission critical areas.

Patient Flow - With their new technology pieces in place, BHS has been able to improve their workflows and processes, manage staff and equipment more efficiently and effectively, and gather data to measure performance against throughput. Specifically this has included:

- Real-time monitoring of patient's movements
- Real-time notifications of patient information sent to the right person, on the right device at exactly the right time.
- Automatic tracking of surgical times, monitoring how long a patient spends in each phase of their operation.

Automated Temperature Monitoring - Managing the compliance of temperature monitored devices such as refrigerators has been a long time example of what an inefficient and wasteful process looks like. At BHS, this manual process was the cause of some 2,000 hours of non-value added time. By going lean and adding the right technology systems, BHS was able to automate this process.

Now if the temperature goes above or below predetermined limits, alerts are sent out to the right hospital staff members so they can immediately address the situation. This has led to better management over the hospitals resources, meaning more value-added time such as nurses spending more time with patients instead of walking around checking temperatures.

Seeing Results: Use Case Number 2

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It's hard to find a better example of what can be achieved when you combine the right technology with the right strategy than at Wake Forest Baptist Health.

It's always been their overall goal to provide the best quality patient and family care to everyone in their community. They knew in order to be successful they had to increase their efficiency while decreasing their operational costs.

Using real-time technologies and a lean healthcare approach, WFBH has been able to far exceed that goal.

They're success starts with their strategy. Unique to WFBH was their creation of the Office of Enterprise Visibility, which oversaw the implementation of different processes and technologies that drive and support: *Service Excellence | Patient Safety and Satisfaction Operational Excellence and Efficiency | Transformation of Healthcare Delivery*

Most importantly are the benefits that they've seen since their implementation began. In just 34 months, Wake Forest Baptist has saved over \$8 million dollars in operating costs. Here's how it breaks down:

- Automated temperature monitoring - **\$970,000 in savings per year**
- Improved asset management - **\$2,000,000 in savings per year**
- Increased staff productivity - **\$2,000,000 in savings per year**
- Eliminating the purchase of redundant systems and avoiding unnecessary costs - **\$3,500,000 in savings per year**

Seeing Results: Use Case Number 3

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In today's hospital environments, whether big or small, success comes down to visibility. When dealing with complex and time-sensitive operations, the lack of timely information can create havoc on both your bottom-line and more importantly your ability to efficiently deliver the quality of care your patients expect and demand.

Let's look at two different hospitals, an older 650 bed facility in Texas Health Presbyterian Hospital Dallas and a newer, smaller 58 bed hospital in Texas Health Harris Methodist Hospital Alliance.

To gain the visibility they both needed to transform their operations, each hospital needed the following:

- RTLS enabled by RFID technology
- Centralized system to oversee multiple operational areas
- Integration capabilities with various other information systems

With these new systems and strategies in place, both hospitals experienced tremendous improvements in asset management and allocation, rental equipment returns, overnight PAR levels, supply transport, room turnover, staff response to patient call buttons, and management of excessive wait times.

Utilizing location services, centralized management and a lean strategy has significantly reduced costs and efficiency consequently increasing patient and staff satisfaction levels.

The following results are nothing short of amazing.

Seeing Results: Use Case Number 3

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Equipment Costs - In the first year alone the 650 bed facility (THPHD) saw at savings of almost \$1,000,000 with \$285,000 from rental equipment, \$100,000 budgeting for shrinkage and over \$600,000 in savings from better asset utilization. Where most hospitals budget an additional 35% to their equipment costs for lost or missing items, the 58 bed Harris hospital was able to completely avoid budgeting for shrinkage.

Room Turnaround - The newer 58 bed Harris Methodist now has the fastest turnaround times of any other THR (Texas Health Resources Health System) at 40 minutes on average, nearly seven minutes faster than the systems average time of 47 minutes.

Patient and Staff Satisfaction - Technology can be one of your hospital's greatest investments and it's also vital to the lean healthcare strategy, however, how does this translate into a better patient or staff experience?

Since deploying its new systems, the 58 bed Harris Methodist hospital's satisfaction rates have never been higher:

- 95th percentile for patient satisfaction (based on: response time to nurse call system, pain control, and emergency department wait times)
- 92nd percentile for physician satisfaction (10% naming technology as one of the hospitals greatest strengths)
- 90th percentile for overall staff satisfaction

The Big Picture

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For every healthcare organization, delivering the highest quality of care to every patient is the top priority. The challenge is how to actually do it?

With rising costs, higher demands, tougher regulations and compliance standards, putting together an effective system to support your goals is not easy or cheap.

However, with the right infrastructure, the right applications (technology tools), and the right strategy, you can discover how to leverage technology to create business-intelligence that actually allows you to do more with less.

Getting Started - Success always starts with having the right strategy in place. Going lean is based around identifying your key processes and workflows; this might be inpatient stays, admissions, equipment replenishment, surgery, prescriptions etc.

Start by getting your key players involved; the people who deal with these processes everyday will be the best place to start when trying to make improvements and drive out waste (we call this value-stream mapping.) In short, value-stream mapping maps out an entire process as it currently operates and identifies value from the point of view of the customer, as well as identifying waste from start to finish.

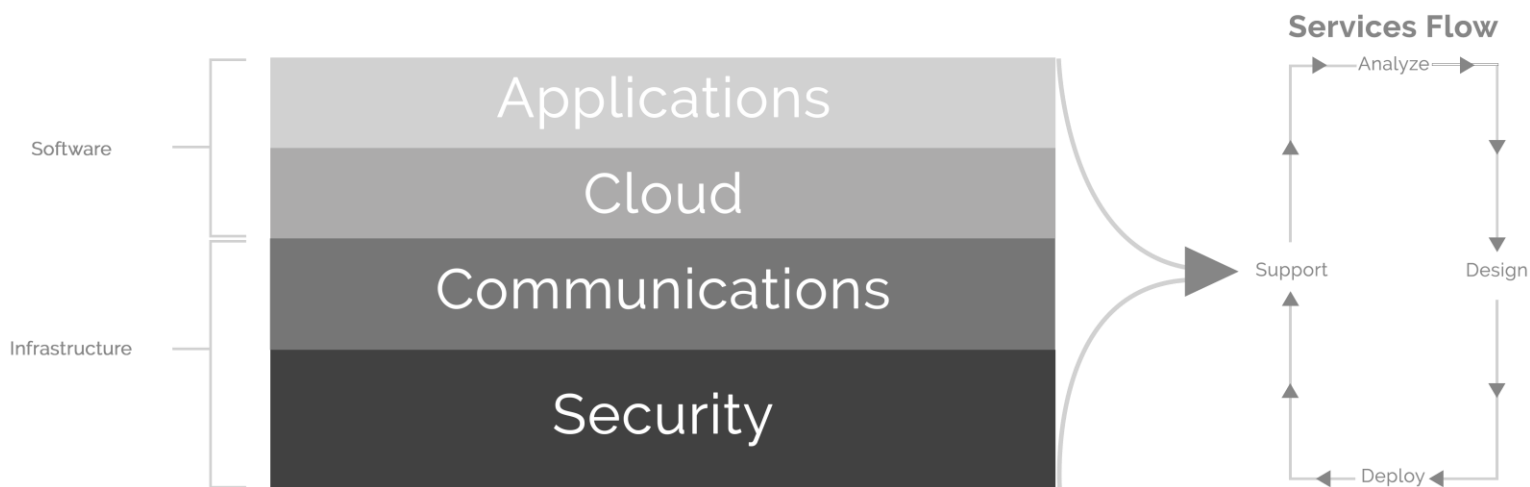
Knowing your current state, you can then map out your future state or the future workflow that is now optimized to be free of waste.

Seems easy enough, but in order to do this accurately, inside a complex environment such as healthcare, it takes more than just mapping out workflows, it takes intelligent systems and the right mix of technology to drive real results.

The Big Picture

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Infrastructure - Technology can do amazing things today, but its performance and effectiveness is directly tied to the infrastructure that it sits on top of, we like to think of this as the "Mobility Solution Stack". In the illustration below you can see how we approach and build mobility solutions today.



Conclusion - Hospitals generate an incredible amount of data, and now with the right technology systems in place, it's possible to turn that data into meaningful insights. By measuring, tracking, and monitoring your environment, processes, people, and equipment you'll not only improve your operational efficiency and effectiveness, but also increase your ability to deliver the best possible care to your patients.

Today's hospital environments are complex and you can't afford to make mistakes. Technology gives you the tools to finally measure your success so you can make smarter decisions based on real data.

Remember, lean healthcare is the strategy or methodology, technology enables it.



About SecurEdge Networks

Yes, it's true, we're geeks. But the real reason we're passionate about wireless is because of what it can do.

Mobile devices and other mobile technologies have changed the fabric of what it means to be alive today. There's not one area of our lives that has not been touched by the possibilities and intelligence that wireless and mobile have created. The best part is, in many ways, we're just getting started.

However, wireless doesn't just work, although many people seem to think it should. It's a very complex and constantly changing system that inherently comes with many critical security challenges. How safe has your data been lately?

Fortunately, there are people (like us) that really want to help make sure that your business is getting it right, the first time.

At SecurEdge, it's our life's work to educate you on how you can leverage wireless to help your business succeed.

Our goal is to provide the infrastructure, services, and support organizations need to do all the cool and cutting edge things they want to do to drive their business forward.

We live by one simple truth; intelligent mobility can make it happen.

Looking to expand your wireless network's capabilities?

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