# Applying Lean Methodologies to Pharmacy Workflows

The advantages of streamlining processes prior to implementing an automated pharmacy solution

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healthcare

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# Executive Summary
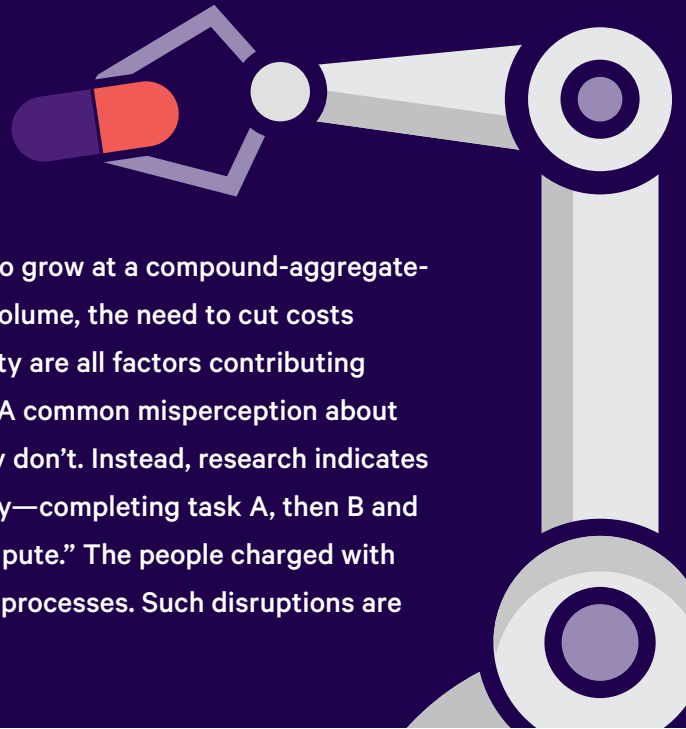
Adoption of pharmacy automation technologies is projected to grow at a compound-aggregate-growth rate of 8.6% through 2024.[1] Increases in prescription volume, the need to cut costs through more-efficient workflows and advancing patient safety are all factors contributing to automation spending that totaled $5.1 billion USD in 2019.[2] A common misperception about automation solutions is that they "solve" process issues. They don't. Instead, research indicates they may highlight them. Automated solutions operate linearly—completing task A, then B and so on. When an impasse is reached, the system "does not compute." The people charged with supporting the technology can create workarounds for faulty processes. Such disruptions are not the only challenge in adopting automation solutions.

A fundamental problem for pharmacy executives is that over time processes become bloated with non-value-add steps. These steps lead directly to waste, in the form of wasted time, longer turn-around times, wasted pharmaceuticals, wasted pharmacy staff intellect and more. Automated solutions don't correct those problems. They simply allow pharmacies to *create more waste faster*. Consequently, a superior strategy is to shake out waste in your processes before implementing automation technologies.

To combat waste, and especially to increase the value that hospital pharmacies deliver to patients, healthcare executives increasingly are embracing lean methodologies. The primary goal of lean is to remove waste by distilling processes down to only the steps that add value. Applying lean principles to your pharmacy is beneficial in its own right.

But applying them to pave the way for automated solutions multiplies their potential benefits. These include dramatically increasing the performance, acceptance, success and value that pharmacy automation solutions deliver. But that's not all that lean projects accomplish. Managers who leverage lean principles make more informed decisions about which automation technology to choose. And they use that knowledge to map the most efficient pharmacy layout and workflows.

This paper describes the application of lean principles to hospital pharmacies. We discuss the five main principles of lean in the pharmacy context. Then we detail the eight main sources of pharmacy waste. Finally, we discuss four excellent reasons for applying lean principles to your pharmacy processes before implementing an automated solution.

SOURCE

1, 2 —  "Pharmacy Automation: Technologies and Global Markets," Research and Markets, October 2019.

# The 5 Principles of Lean

Most pharmacists think that the lean method is about increasing the efficiency of pharmacy operations and processes. And they'd be correct. But lean contributes much more than tactical improvements. It incorporates five main principles that, together, elevate lean to a strategic tool.

What follows is a brief description of each lean principle[4,5,6,7] along with how it is applies to hospital pharmacy.

«Published literature has shown how lean thinking has been used in various health care settings, including [the] pharmacy, to reduce error rates, provide faster service, lower costs, engage staff, improve patient satisfaction, and decrease mortality rates.»[3]

## Principle #1: Identify customers and define value

The two key words here are "customers" and "value." For pharmacists, the word "customer" is synonymous with patients.[8] These include those who receive pharmacy products and/or services in both hospital and ambulatory care (medical centers, clinics, doctor practices, the home) environments. The second term "value" refers to the worth of what your pharmacy delivers from your patients' perspective.

In health care, the value equation is often written as:

$$Value = \frac{Quality\ (Outcomes\ of\ Care,\ Safety,\ Service)}{Cost\ Per\ Patient\ Over\ Time}^{[9]}$$

Quality is a key variable of value. An essential element in its calculation are the outcomes that patients receive from medication therapies. Certainly, the five rights of medication administration[10] contribute to outcomes and safety. But patients also heavily emphasize the importance of service. To them, service means several things, including timeliness—which may be related to process efficiencies—as well as interactions with service provider personnel (pharmacist "touches"). And of course, all these quality variables are divided by the "cost" of the products/services delivered over time.

**SOURCE**

3 — Hlubocky, Jennifer, Pharm.D., Clinical Pharmacist Generalist; Brummond, Phil, Pharm.D., M.S., Assistant Director of Pharmacy Services, "Pharmacy practice model change: Lean thinking provides a place to start," Am J Health Syst Pharm, May 15, 2013, Vol. 70, No. 10, pp. 845-84.

4 — "The Five Principles of Lean Thinking," Cardiff University.

5 — Spoerl, Bob, "How to Get Hospitals to Think 'Lean': 5 Key Principles," Becker's Hospital Review, July 12, 2012.

6 — "Principles of Lean," Lean Enterprise Intitute.org.

7 — Patel, Priyal, "Creating a Lean Mean Healthcare Machine: Part 2," Perficient, July 16th, 2012.

8 — Note that physicians and nurses also represent "internal customers." And while delivering value to these and other key stakeholders is important, lean focuses intensely on the delivery of value to healthcare consumers.

9 — Smoldt, Robert, K., MBA; Cortese, Denis, A., MD, "Pay-for-performance or pay for value?" Mayo Clinic Proceedings, February 2007, 82(2), p. 211.

10 — Institute for Safe Medication Practices. "The 'Five Rights.'" Acute Care ISMP Medication Safety Alert. April 7, 1999.

# Principle #2: Map the value stream

To improve the efficiency of pharmacy operations it is critical first to document existing processes that deliver products and services. This is referred to as **current state mapping.** The medication fulfillment process, for example, includes all the steps your pharmacy takes to receive the patient order, pull the medication, verify it and deliver it to its destination for patient administration. Collectively, these process steps represent a "stream" of actions taken to deliver the value, in this case, the medication to the patient.
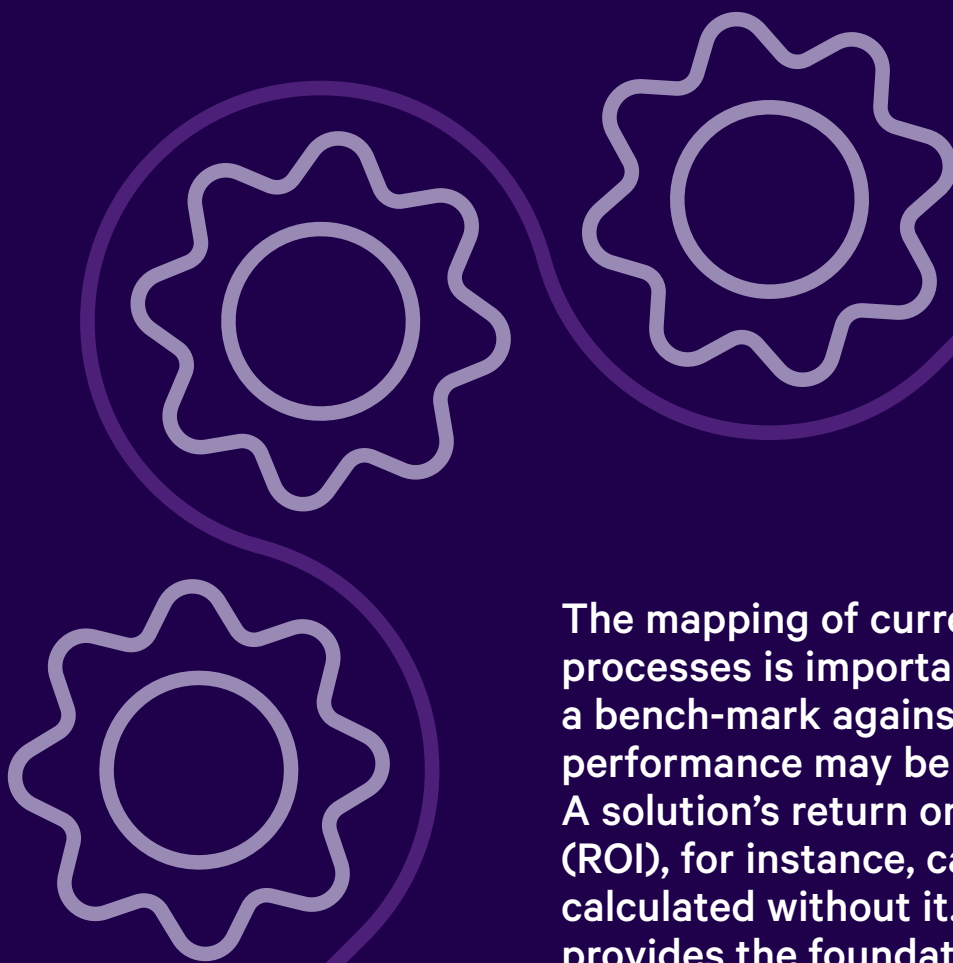
The mapping of current state processes is important to establish a bench-mark against which performance may be compared. A solution's return on investment (ROI), for instance, cannot be calculated without it. Moreover, it provides the foundation necessary to apply other Lean principles.

# Principle #3: Create efficient workflow and eliminate waste

This principle is what most people think of when they hear the term lean. It focuses on identifying wasteful steps and eliminating them from a process. This includes asking questions such as, "What tasks allow us to deliver a positive patient experience?" "How does this step help us deliver value to our patients?"

Having mapped current state, pharmacy specialists then analyze the flow of information, products and services to patients in order to identify waste. Each step in the value stream map is evaluated, and categorized as "creates value," "does not create value but is necessary," or "creates no value," i.e., it is waste.

The process is then revised to eliminate wasteful steps resulting in a **Future or Ideal State process** as illustrated in Figure 1.[11]

Ideally, all processes work according to standard operating procedures (SOPs). SOPs promote compliant, consistent and predictable outcomes as well as efficient utilization of resources. Unfortunately, long, variable processes don't mesh well with SOPs. On the plus side, less complex, repetitive processes benefit greatly from standardization. Examples of this include SOP processes for half tabs, the creation of pre-filled syringes/IV bags and the dispensing of products from specified locations.
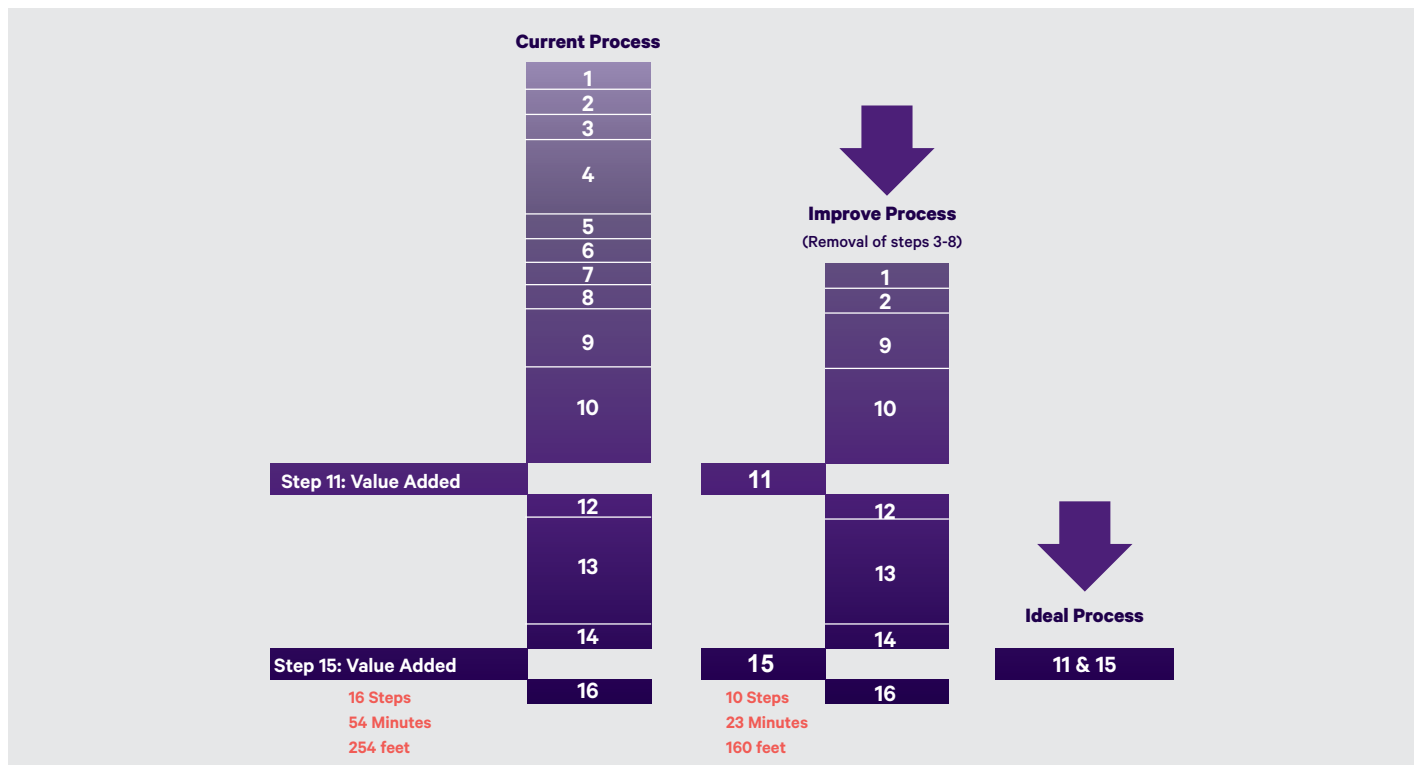


Figure 1: Applying Principle 3 to eliminate waste and improve efficiency.

SOURCE

11 — "Applying Lean to the Medication Use Process: Issues for Pharmacy," ASHP.

«Our health system applies lean criteria in evaluating and selecting pharmacy technologies. As a result, our investments in automation solutions have helped us increase patient safety, efficiency, quality of service and patient and staff satisfaction levels.»

— Rich Mendribil PharmD, Health System, Director of Pharmacy Services, Northern Arizona Healthcare

## Principle #4: Respond to customer pull

Principle #4 is important to your pharmacy because it acknowledges the major driver of demand is "pull" versus "push." Pull is to filling prescriptions as they come in as push is to filling carts and delivering them to wards. Pull processes respond to patient needs on demand. Push processes anticipate patient needs by making an educated guess about which medications/services will be needed when and queueing them in advance.

Evaluating processes through the pull/push prism includes asking questions such as, "What do our patients need and when do they need it?" "How are our pharmacy systems responding to pull orders?" "How is our inventory managed to ensure cost-efficient, timely delivery to patients?" Responding to customer pull ensures that pharmacy processes are aligned to deliver value within the context of the major demand driver.

## Principle #5: Pursue perfection through continuous improvement

Principle #5 acknowledges that lean is an ongoing endeavor. That means two things. First, processes must be monitored to prevent non-value-add steps from creeping into them. Second, processes must be reviewed and revised regularly to replace OK-value-add steps with much-greater-value-add steps.

Continuous improvement emphasizes a never-ending quest for quality, versus a "Let's implement this automation solution and we're done," approach. Thus, it promotes a lean culture, dedicated to delivering value to pharmacy patients. This thinking then permeates every activity pharmacists and technicians perform and maintains a focus on what's important to their patients.

# Using Lean Tools to Increase the Value Your Pharmacy Delivers

The previous section discussed lean's guiding principles. The following content expands upon that foundation, describing how to use common lean tools to improve pharmacy processes.

## "We've always done it this way."

Over time, processes get bloated by non-value-added steps and workarounds. There may have been a time when a step or workaround was necessary. Maybe at that time it even delivered value. But frequently, when pharmacy technicians are asked, "Why do you do this step?" they reply, "Because that's the way we've always done it." This response suggests a passive approach to work. One that is focused on "getting the job done."

There's no doubt that getting the job done is important. However, by scrutinizing processes to identify and eliminate waste, pharmacy specialists can not only get the job done faster, it's also often done better (yielding greater value). Consider the Western Pennsylvania, Allegheny Health Network (AHN). After years of using their automatic dispensing carts (ADCs) managers"…began to notice non-value-added steps in the medication administration process…"[12] This and other factors motivated pharmacy managers to re-evaluate their processes to eliminate waste, and therefore optimize the use of their existing technology.

## Eliminating pharmacy waste

By eliminating waste, pharmacies distill process activities down to steps that add value. In so doing, managers optimize the value delivered to patients per unit of labor. The number of waste types vary. Some industry experts point to seven wastes. Others to eight. Waste is also identified by various acronyms. These include SWIMTOO, TIMWOOD and TWO DIME. Our lean practitioners identify eight types of waste with the acronym WORMPIIT. They use this checklist to root out non-value-add activities in pharmacy processes.

### Pharmacy Waste #1: WAITING

Idle waiting time is wasted time. Given annual median salaries of $128,090[13] and $33,950[14], for pharmacists and pharmacy technicians, respectively, every percent of wait time translates to wastes of $1,193 and $297 per year. Process activities that include, or lead to, waiting, are prime candidates for review and revision. This might include waiting for physician orders, processes that include phone calls (often leads to voicemail, being put on hold, etc.), waiting for order verification and medication preparation and review.

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SOURCE

12 — Mehta, Arpit, PharmD, MPH; Mark, Laura, PharmD, MS, FASHP, "Using Lean Principles to Optimize ADC Stock," Pharmacy Purchasing & Products, May 2015, Vol. 12, No. 5, p. 4.

13 — "Best Health Care Jobs: Pharmacist," U.S. News & World Report. 2021.

14 — "Best Health Care Support Jobs: Pharmacy Technician," U.S. News & World Report. 2021

Manually intensive pharmacies tend to cycle through periods of extreme activity followed by downtimes. Automation solutions help even out this cycle, promoting a steady workflow that reduces stress and optimizes the use of pharmacist and technician labor hours.

**Pharmacy Waste #2: OVERPRODUCTION**

Overproduction is a common waste in pharmacy operations. Producing more than needed wastes time, money and products. An example of this is the cart-fill process. Lean tools can be effective in identifying the best time to fill and deliver carts. Just-in-time, drop-and-go cart fills yield shorter cycle times and offer greater value when deliveries are aligned with nursing shifts. Moreover, by removing unused and discontinued medications with each delivery, the pharmacy increases patient safety and lessens the workload on nurses tasked with sorting out medication status.

In this case, effective inventory management—including the analysis of historical use data to guide fill SKUs and quantities and maintaining accurate inventory counts and updates—are invaluable aids to combating overproduction. Overproduction is an especially bad form of waste as it has a doubling effect. Overproduction not only wastes resources (time, products, etc.), it can also lead to rework waste, such as the processing of returned medications (overproduced).

**Pharmacy Waste #3: REWORK**

The time it takes to correct medication errors and the time and drug products it takes to re-dispense lost orders represent rework waste. Current state process diagrams help analysts identify and correct processes that are broken. Future state maps promote processes that complete tasks correctly the first time.

**Pharmacy Waste #4: MOTION**

Motion waste is the unnecessary movement of products, data or personnel in a process. How much walking, reaching or moving is necessary for your techs to create an IV bag or split a tablet in half? Motion is heavily influenced by the floor layout of pharmacy workstations, automation technologies and storage systems. Inefficient floorplans create workflow bottlenecks, and can add unnecessary, wasted motion to processes. Workflow analysts comb current state and future state processes to guide the creation of efficient layouts. Resources then can be situated to enable multitasking and reduce the distance users must move to complete a process.

A good illustration of using lean principles to eliminate motion waste is at a Cleveland, Ohio Clinic. Specialists analyzed 68 workflows to find that 38% of tasks (251/664) required employees to walk away from their workstations.[15] After using lean to revise their processes, only 9% of tasks required leaving a workstation.[16] Thus an average of 3.4 travel events were eliminated, each taking between eight and 70 seconds in travel time.[17]

SOURCE

15, 16, 17 — Yerian, Lisa M., MD; Seestadt, Joseph A.; Gomex, Erron R.; Marchant, Kandice, K., MD, PhD, "A Collaborative Approach to Lean Laboratory Workstation Design Reduces Wasted Technologist Travel," American Journal of Clinical Pathology, 2012, 138, 273-280

## Pharmacy Waste #5: PROCESSING

Processing waste is any process step that doesn't add value to the pharmacy product or service. For example, manually packing bulk oral solids into unit doses. Operationally, this is wasteful because it's an activity that can easily be automated. Process steps that are subsequently reversed result in waste – for example, adding new orders to stock in ADCs only to remove them when they are discontinued or not needed. Another example is product transfer. Is your pharmacy bundling SKUs, bagging them then putting them in a bin? Might there be a more efficient way to accomplish this task while maintaining safety?

## Pharmacy Waste #6: INVENTORY

With medication inventory costs comprising up to 70% of health system pharmacy budgets[18], this area has rich potential for waste reduction. Inventory waste comes in the form of wasteful procurement processes, overstocked "just-in-case" inventory stores versus "just-in-time" supply, inefficient overhead, inefficient dose tracking processes that lead to lost doses and poor inventory management that results in excessive expirations.

«**Improving drug inventory management processes can have a significant impact by reducing inventory on hand and losses from expired medications.**»[19]

Reducing waste in these areas is a delicate balancing act that puts pharmacy directors to task balancing fiscal responsibility with meeting patient safety and demand. The application of lean methodologies has measureable impact in this area. One Great Lakes Region hospital, for example, applied lean principles to its sterile products and inventory

processes. The effort improved workflow, decreased staff requirements and cut waste by an estimated $289,256 per year.[20] "Quality and safety were also improved, as measured by reductions in missing doses, expired products [down 20%], and production errors."[21]

Applying automated picking technologies, in concert with inventory management applications, has also had a significant effect in reducing waste. One Pennsylvania medical center pharmacy supplied the needs of 30 inpatient/outpatient pharmacies, infusion centers and physician practices. Managers implemented an automated unit-dose packaging, storage, and dispensing system as well as an automated, high-density storage system. These incorporate tracking systems and barcode capabilities to better manage inventory. Six months after implementation, inventory overhead was cut by $350,000, missing doses were reduced by 40% (reduced rework waste and return processing), and cart-fill times were slashed by 71%, from an average of 14 hours/day to four.[22]

SOURCE

18 — Moore, Dallas, MS, RPH, "Optimizing Medication Inventory through Consolidation," Pharmacy Purchasing & Products, May 2014, Vol. 11, No. 5, p. 8.

19 — Growing Pharmacy Inventory Management Complexities Increase Hospital Need for Comprehensive, Integrated Solutions," Rx Times, August 10, 2011.

20, 21 — Hintzen BL, Knoer SJ, Van Dyke CJ, Milavitz BS. "Effect of lean process improvement techniques on a university hospital inpatient pharmacy." Am J Health Syst Pharm. 2009; 66(22):2042–2047.

22 — Nishaminy Kasbekar, PharmD, FASHP, "PillPick and BoxPicker from 3 Healthcare," Pharmacy Purchasing & Products, July 2013, Vol. 10, No. 7, p. 40.

**Pharmacy Waste #7: INTELLECT**

Intellect waste is more conceptual in nature and carries an opportunity cost. There are two components. The first is the application of a pharmacy employee's skill set, education and experience to complete tasks that could be performed by someone with a lesser skill set. The second is the performance of repetitive or low-value-add tasks that don't fully utilize a person's potential to contribute. This waste has implications for patient care, as pharmacist labor hours may be occupied by prescription-filling versus clinical-care tasks.

Eliminating intellect waste from the pharmacy is a strategic imperative. That's because of the permanent shift in reimbursement terms that emphasize outcomes and patient satisfaction versus work performed. To meet this standard, pharmacists need to spend more time on clinical care, including time consulting with patients, and less time on repetitive tasks that could be completed by technology solutions. This has the added benefit of supporting Practice Advancement Initiatives (PAI), formerly Pharmacy Practice Model Initiatives[23] by leveraging technician labor and redeploying pharmacists' time for clinical activities.
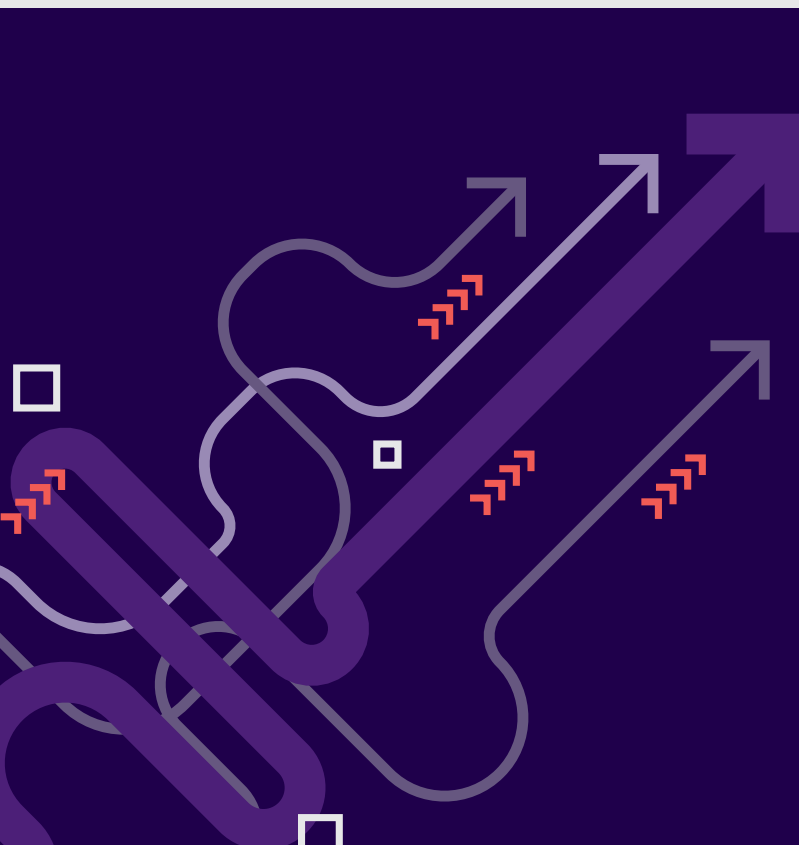
**Pharmacy Waste #8: TRANSPORTATION**

Transportation waste is similar to motion waste, but involves longer distances. For example, how efficient is your prescription-fill process? Do you fill medications in one location, check them in another, then set them aside for transport to a staging area or patient room? Any product movement is wasted if it does not result in the final destination. This applies to all pharmacy activities, including receiving. For instance, are totes delivered to one location, moved to another, then yet another to finally be put away?

SOURCE

23 — American Society of Health-System Pharmacists. http://www.ashpmedia.org/ppmi/.

# Improving pharmacy flow

An optimized pharmacy layout contributes to the safe, efficient movement of medications from order receipt to delivery. Future-state workflow diagrams help pharmacy managers determine what equipment is needed, how much space it will occupy and whether any construction/rearrangement of space is required. Workflow diagrams may be used in concert with lean tools to help design the ideal workspace layout.

### The 5S lean flow tool

The 5 Ss (sort, straighten, scrub, systemize and standardize) is a tool used to reduce clutter, eliminate unnecessary items, relocate tools and equipment and better organize pharmacy work spaces to improve flow. The 5Ss may be used to locate an automated unit-dose packaging, storage, and dispensing system. One Pennsylvania hospital selected and situated a new unit-dose packing system to sidestep workflow bottlenecks. This gave managers the ability to complete first-dose picks and cart-fill activities simultaneously to achieve "...significant gain[s] in workflow efficiency, as well as a significant reduction in manually picked doses..."[24]

**Sort**

**Straighten**

**Scrub**

**Systemize**

**Standardize**
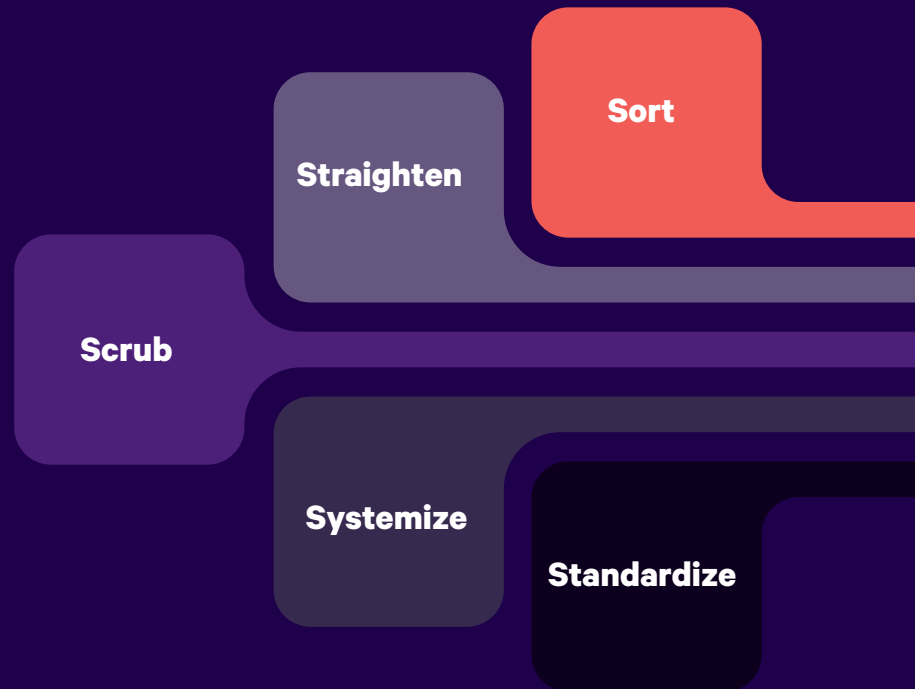
### Organizing work cells

Rather than considering each pharmacy worker's labor in isolation, it is more efficient to look at it within the context of overall processes. A common concept in manufacturing environments, it is often more efficient to locate employees doing complementary tasks that require interaction, near one another. The concept of work cells drives questions like, "Would it be more efficient to locate a pharmacist in each major work area versus setting up an area dedicated only to them?"

SOURCE

24 — Begliomini, Robert, R.Ph, PharmD, MBA, FASHP, "Product Spotlight: Swisslog Healthcare PillPick," Pharmacy Purchasing & Products, April 2008, Vol. 5, No. 4.

# Four Reasons to Apply Lean to Your Pharmacy Before Implementing Automated Solutions

Applying lean principles to pharmacy processes yields significant benefits on its own. However, completing this work prior to deploying automation technologies, enables pharmacy managers to dramatically boost the benefits their significant investment delivers. So much so, that the subject deserves special attention here.

**Reason #1: To maximize the benefits that automation solutions deliver.**

Implementation of automated pharmacy solutions represents a substantial investment in money, time and political capital. So it is in managers' best interests to do everything they can to ensure successful deployment. Applying lean to pharmacy processes documents your pharmacy's environment, needs and ways of doing things. This allows you to take a strategic approach to automation, versus putting in a tactical point solution that may or may not be the best choice. Moreover, by leaning your processes first, you'll eliminate waste. The alternative is automating waste-filled processes so that you can produce more waste faster.

## Drive the selection of the best automation solution

By mapping current state and future state processes, you're able to complete a more accurate gap analysis. Moreover, it aids you in the request for proposal (RFP) requirements definition. Sometimes, several pharmacy automation solutions can do what is required, but one solution is the better choice for your environment. Thus, by undergoing lean first, you ensure that the best investment is made to address a well-articulated process problem. That translates into responsible use of precious budget funds.

A good example is Arizona's Flagstaff Medical Center (FMC.) Pharmacy managers weighed current and future state processes to help decide between an updated carousel system or a different automated storage and retrieval system. Based on this information they chose the second automation system because it would deliver more value in their environment.[25]

## Get more benefits sooner

In Stephen Covey's book, Seven Habits of Highly Effective People, one habit is to "Begin with the End in Mind." By mapping out future state processes, you establish an "end," i.e., a picture of what success looks like. That focuses the efforts of employees and vendor specialists on achieving that goal. To illustrate, consider the analogy that a pharmacy automation solution is like a digital camera. Today's digital cameras offer advanced features and capabilities that photographers never dreamed of a few years ago. But most users put their cameras on "auto" and never use value-add features. So they get results below their expectations.

Pharmacy automation solutions represent too great an investment to simply put them on "auto." Instead we advise the use of current and future state process maps to help implementation specialists incorporate/turn on, relevant features. This enables the technology to deliver greater value from the start. Thus, the cumulative effect can be substantial. Not only can more features be used at go-live, but value-add features may be applied to more processes as well.

As an example, consider the situation where automation solutions go live without leveraging medication expiration date functionality. Every day that passes multiplies the waste of lost meds and time (spent auditing ADC med stores for example.) That in turn, lengthens the time it takes to achieve a positive ROI.

SOURCE

25 — Mendribil, Richard, BS, PharmD; Jensen, Mark, PharmD, "Maintaining Functionality During a Major Pharmacy Renovation," Pharmacy Purchasing & Products, Vol. 12, No. 3, March 2015, p. 16.

**Enable efficient pharmacy layout to optimize flow.**
Leaning processes before putting in an automated solution permits decision-makers to tailor the physical layout of the pharmacy to maximize the value they derive from it. At Arizona's Flagstaff Medical Center, managers worked with a workflow analyst to get the most out of an automated medication storage, retrieval and inventory-management system. Future state processes drove the selection of a multi-module unit that incorporated two access points. This allows "... multiple staff members to simultaneously use the equipment for distinct operations, such as loading, dispensing, and crediting, in order to improve workflow within the pharmacy."[26] That, in turn, increases the utilization of the solution that is used to pick and dispense patient-specific first doses, to pick ADC and cart-fill volumes, to restock and credit returns, to perform inventory control and to draft wholesaler orders.[27]

# As a result, their system reduced ADC pick times by 45%; slashed patient-specific first-dose pick times by over 400%; cut drug-to-patient turnaround times; lowered ADC stock outs and permitted the reassignment of resources to sterile compounding operations.[28]

**Avoid common implementation pitfalls**
Leaning pharmacy processes identifies and addresses workflow issues and bottlenecks prior to implementation. This sidesteps attempts to correct problems in the midst of hectic daily operations. Moreover, this approach profoundly increases the chances of a smooth and satisfying implementation.

By collaborating with pharmacy managers and technicians, lean specialists account for all relevant process steps and dependencies to ensure no work stoppages occur on the go-live date. It is very difficult to rework processes and technologies during busy daily operations. Moreover, such activities increase stress levels among pharmacy personnel as well as affected stakeholders (physicians, nurses, etc.). The alternative to a smooth roll-out is a rough start that instills doubt in users'/stakeholders' minds. That in turn, generates pessimism and distrust of the technology that is time-consuming and painful to reverse.

SOURCE

26, 27, 28— Mendribil, Richard, BS, PharmD, "BoxPicker by Swisslog Healthcare," Pharmacy Purchasing & Products, May 2015, Vol. 12, No. 5, p. 52.

**Reason #2:** Promotes a lean healthcare culture focused on value

# Leaning pharmacy processes contributes to a provider culture focused on value from the patient's perspective. This worthwhile goal incorporates a "higher calling" dimension – one where pharmacy work is more "a labor of love" versus "just a job." This higher calling shows in employee's attitudes and interactions with patients and colleagues. And it is an attitude consistent with the trend towards pay for outcomes versus pay for work performed. Since a core principle of lean is continuous improvement, the act of leaning processes promotes this value among pharmacy staffers and stakeholders.

**Reason #3:** It is necessary to calculate ROI and "prove" success

At some point, your executives and board members will want an accounting of the money spent on an automation solution. That means documenting the ROI as well as showing an improvement among key performance indicators (KPIs). This can be done only by establishing baseline costs – a key benefit of pre-implementation lean activities.

In addition to baseline costs, you'll be able to document benchmark performance metrics. These numbers are a valuable aid in identifying trends – dips or gains in performance – that can help you tweak processes to extract even more value from the investment.

## Reason #4: Dramatically increases user buy-in, acceptance and adherence

Let's face it. Implementing a pharmacy automation solution involves a good measure of disruption. Not only will pharmacy staffers experience interruptions to their daily work beforehand, they'll have to change the way they do their work afterwards. The key term here is "change." By and large, people don't like change. Improperly handled, that dislike can metastasize into resistance and a refusal to adopt new processes/systems. If adherence rates suffer, the new solution will underperform.

Leaning pharmacy processes before an implementation avoids this. And, it significantly increases user buy-in, acceptance and ultimately, adherence. These, coincidentally, are all objectives of an effective change management program. The more effective you are in managing change, the greater the likelihood that you'll meet or exceed your pharmacy automation objectives.[29] A pointed example of this is where increased user compliance was shown to directly correlate to shorter IV-preparation turn-around times.[30]

Process leaning cultivates user buy-in by involving employees and stakeholders in the current/ future state process mapping. This has the effect of lowering staffers' anxieties and fears about automation—two major drivers of resistance.

**The number one automation-solution fear among employees is the fear of being replaced. Through participation in the mapping/revising of processes, they'll see that they're not being replaced, but rather being reassigned to do more value-add tasks. Moreover, they will be well-informed about the coming change. And therefore, much less likely to engage in distracting rumors and office scuttlebutt.**

A second benefit from pre-implementation leaning is that it gives workers an opportunity to voice their concerns. They're able to work through process issues beforehand instead of worrying about them—or worse, suffering from them – after an implementation. Most importantly, however, pre-implementation leaning enlists front-line users to contribute value-added suggestions. This promotes both a collegial atmosphere and a value-add culture.

SOURCE

29 — "Best Practices in Change Management-2014 Edition, Executive Overview," Prosci, Inc., 2014, p. 4.

30 — Melby, Michael, MS, FASHP, "Managing change for new pharmacy systems." Dec. 7, 2011, slides 50 and 51.

# Summary

Lean healthcare has become a permanent thread in the care-delivery tapestry—for good reason. Lean methodologies have been just as effective in increasing the value that pharmacies deliver as they have been in helping manufacturers create better, cheaper widgets.

The push to lower costs, increase patient safety and improve efficiency has driven the deployment of pharmacy automation technologies. Such technologies interface with pharmacy personnel at the process task level. When this happens, process shortcomings are highlighted versus being solved. Ignoring this reality leads to the creation of more waste faster.

Based on our decades of implementation experience, a better strategy is to apply lean principles to pharmacy processes prior to deploying an automation solution. This yields dramatically better results: better value to patients (quality, outcomes, cost), greater efficiency (more prescriptions processed, lower TATs, lower costs), improved user adherence (to optimize the technology's benefits), and ultimately, better ROI. In this way, pharmacy executives can use lean to maximize the value their investment in automation solutions delivers to patients and stakeholders.

# Steps for Success

Contact Swisslog Healthcare Solutions to learn how our proven pharmacy automation solutions can help you:

— **Improve pharmacy workflows**

— **Reduce errors to improve patient safety**

— **Deliver faster turn-around times**

— **Control inventory overhead**

— **Manage medication preparation, storage, retrieval and delivery expenses**

— **Reduce medication loss and diversion**

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