

Back to Basics:
Using a Lean Approach
to Help Create Better
Outcomes and Lower Costs



Lean management principles, including improving scheduling methods, enhancing revenue cycle and identifying patient flow bottlenecks, have traditionally been used by healthcare organizations to make operational tasks more efficient.

But what about using Lean management principles to optimize clinical care? Would doing so improve both the clinical outcomes AND the operational efficiency? In this white paper, we examine how a Lean approach will drive both clinical performance and operational efficiency. We explain that clinical optimization is a strategy that, while often employed to reduce many types of operational waste that occur at the point of care, has the potential to dramatically improve outcomes.

Lean Clinical Approach

First developed in the manufacturing industry, the Lean methodology for process improvement offers a systematic approach to implement continuous improvements that minimize or remove waste or unnecessary steps without negatively impacting efficiency, productivity or quality. The approach focuses on seven forms of waste, five of which can be directly applied to clinical work:



1 Overproduction

Making too much of something before it is needed, resulting in excessive inventory. *(In clinical settings, seeing patients that do not really need to be seen.)*



2 Waiting

Delaying the process or next step to wait for a previous step to occur or finish. *(In clinical settings, waiting for test results, not having information needed to treat now.)*



7 Defects

Deviating from what's required, often caused by unclear operating procedures or specifications. *(In clinical settings, having clinical information that is not precise enough to use to treat immediately.)*



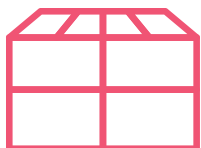
3 Transport

Involving unnecessary steps or locations in the movement of material.



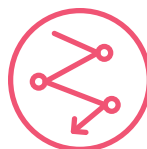
4 Motion

Requiring motion of people or equipment that does not add value. *(In clinical settings, forcing patients or clinicians to leave the exam room or go elsewhere for tests.)*



6 Inventory

Stockpiling more supplies than are needed for producing products or services "just-in-time."



5 Overprocessing

Adding more value than is required or needed by customers. *(In clinical settings, requiring diagnostic or treatment steps that are not necessary to make a sound clinical decision.)*

Today's clinical workflows may be filled with unnecessary steps when clinical protocols are either poorly defined or sub-optimally implemented. Too often, the actions and processes that comprise the routine delivery of care are "rework," where tests or examination steps are repeated because there is a lack of confidence in — or access to — the first study. In a Lean setting, tasks and studies done at the point of care need to be carefully designed to ensure accuracy, access and timeliness.

Imagine if providers had all the information on-hand at the point of care at the time of the patient visit. Next, imagine that information was of high precision and accuracy, sufficient to drive clinical decision making when the provider is still with the patient. Having this level of efficiency and accuracy could eliminate a number of cumbersome steps.

Tasks such as ordering labs, reviewing labs, setting up follow-up visits, making phone calls, managing medication formulary issues, explaining a non-existent disorder to a patient, working up insignificant (but present) abnormalities found on labs, and documenting encounters and lab results all could be minimized or even eliminated in a true Lean clinical scenario.

Benefits would also be felt by patients who could avoid unnecessary labs, pharmacy and office visits, costs associated with medications, anxiety of waiting to hear if they have a diagnosis, and new risks from pharmaceutical interventions they may not have truly needed in the first place.

So where should healthcare organizations begin when looking at using a Lean approach to improve clinical work and outcomes? Many consultants in the manufacturing industry recommend using a direct approach when attacking waste. This is often led by two common questions: "What are your core business values?" and "What is the most important value stream that is impacted by these issues?"



Source: <http://www.ihl.org/resources/Pages/Changes/ImproveWorkflowandRemoveWaste.aspx>



Translated into the clinical environment, these questions become: “What are the most important clinical findings for improving outcomes?” and “Which clinical care processes need to be optimized at the point of care to give you the most accurate and most timely findings?” Basically, these two questions get to the heart of the matter, which is having the information needed to make a sound clinical decision for the patient right now at the point of care.

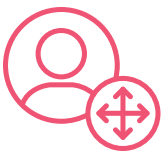
Within this context, caregivers and staff at healthcare facilities can ask a number of additional questions, including:



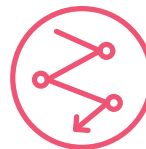
*Can I eliminate the waiting?
Why can't I get this lab/data
right now?*



*Can I eliminate a diagnostic
defect? Is there a way to make
my tests more accurate and
actionable the first time?*



*Can I avoid motion for this
patient and get it all done
right here?*



*Am I overprocessing this patient?
Does he/she really need to do
all these tests outside the office?
Can I arrange for just-in-time
clinical data?*



*Am I overproducing? Do I
need to even see this patient,
or should I be focusing on
patients that need me more?*

Proof Point: Lean Blood Pressure (BP) Acquisition

In many cases, BP acquisition provides an ideal place to start the journey to better clinical outcomes through the use of the Lean methodology. Of all the vital signs, BP measurement has perhaps the strongest connection to point of care diagnosis, patient risk stratification and medication dosing. Because of its centrality in care and new guidelines for diagnosing patients with hypertension, it is essential that BP assessment is accurate.



In 2017, the American Heart Association and the College of Cardiology released a whole new set of guidelines for management of blood pressure disorders - the first in decades



AHA and ADA created a partnership in July 2018



New numbers are based on expert review of thousands of clinical studies



Recommendations are clinically significant, will increase the number of US citizens diagnosed as hypertensive by 10's of millions



Evidence was convincing that lower threshold would reduce cardiovascular events by double digits

Recently the guidelines have changed for BP management. Under the new guidelines, the threshold to treat is significantly lower. With 130 mmHg on the systolic side and 80 mmHg on the diastolic side representing the new level for diagnosing hypertension, over 30 million more Americans are in the category of requiring BP treatment.

Blood Pressure Category	Systolic mm Hg (Upper Number)		Diastolic mm Hg (Lower Number)
Normal	Less than 120	and	Less than 80
Elevated	120-129	and	Less than 80
High BP (Hypertension) Stage 1	130-139	and	80-89
High BP (Hypertension) Stage 2	140 or higher	or	90 or higher
Hypertensive Crisis (Consult your doctor immediately)	Higher than 180	and/or	Higher than 120

Source: American Heart Association

With reimbursement shifting to value-based schemes, providers need to be very accurate in their determination of who needs intervention and who does not. The ultimate goal boils down to two categories: 1) reducing risk of chronic disease in a clinical context, and 2) reducing risk of high-cost interventions in a cost-management context. Using a Lean approach for evaluating how value is created, the equation is fairly simple.

$$\text{Clinical Value} = \frac{\text{Outcomes}}{\text{Costs}}$$

However, reducing risk ironically incurs some new risk: the risk of intervention. To achieve the best outcomes possible, an optimized model will find a way to maximize the distance between untreated disease risk and the risk of intervention.

$$\text{Better Outcomes} = \text{Maximize reduction of chronic disease burden while minimizing new risks from intervention}$$

Likewise, lowering costs associated with a disease incurs new costs: the costs of intervention. Work needs to be done to reduce the original risk, and that work is intervention by a provider team. In an optimized system to lower costs, that intervention cost is as low as possible while achieving the cost avoidance desired.

$$\text{Lower Cost} = \text{Maximize reduction of resource utilization while minimizing total costs of intervention}$$

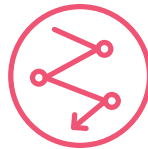


Acquiring BP measurements is a great example of how this can be achieved. So let's revisit the five forms of waste from a Lean approach that directly apply to that clinical work.



Overproduction

Can we be sure that we are only seeing BP patients that truly need to be seen and will benefit from that visit?



Overprocessing

Can we eliminate the ordering of unnecessary tests or follow-up calls for patients that, because of poor protocol or technique, never actually had a BP problem to begin with?



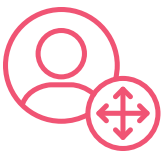
Waiting

Is there a way to have all the necessary information at the point of care to start BP treatment immediately while the provider and patient are together?



Defects

Is there a way to be sure our clinic's BP is accurate every time to avoid many of the mentioned secondary wastes?



Motion

Can we make the acquisition of BP more efficient at the point of care, even with the new guidelines that make it slightly more complicated?



Short-Term Benefits

Eliminating waste and optimizing BP management will deliver a number of short-term benefits. One such benefit is a direct financial reward: achieving a higher Merit-Based Incentive Payment System (MIPS) score by meeting the quality metrics tied to BP. In most cases, when proper technique is applied to the best-known standards, the BP of a population tends to go down. Hence, there is more opportunity to cash in on MIPS-related incentives for optimized BP, even without starting a new intervention on a single patient.

Other indirect, short-term benefits include fewer labs to review, fewer medication-related issues with which to deal, fewer phone calls to patients, less time teaching patients, increased perception of clinical sophistication and professionalism, and a more enhanced patient experience. By freeing up work that is a non-value-add to improving outcomes, more time can be dedicated to those that need that time from the care team.



Long-Term Benefits

The long-term rewards offered by this approach are even more appealing and financially impactful. Improper clinical risk stratification of patients results in expensive resource consumption for patients where interventions will have a low impact on improved outcomes. Opportunity costs associated with low value-add visits tie up rooms, staff and appointment times that could be better used for patients that are more in need of care. Lack of clinic availability increases the risk of patients choosing to go to emergency rooms for urgent care. In other words, your valuable resources will be freed up to focus on patients with higher risk that would benefit from the intervention. When directed at the right population, even a minor reduction in long-term disease risk has the potential to move the needle on cost of care. With every admission for heart-related conditions typically costing more than \$16,000¹, eliminating a few a year within your own patient population will have a significant impact on your overall costs.

Conclusion

Healthcare organizations have used Lean methodology to realize significant operational efficiency gains. The increased focus on the delivery of quality care offers further gains to be realized with the approach. By taking a Lean approach with clinical workflows, such as BP acquisition, healthcare providers can take steps that will help improve clinical outcomes.

To access a webinar, infographic and additional materials on optimizing vital signs acquisition, [visit the Resource Library on midmark.com.](#)

¹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5436769/>



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