Outpatient Pharmacy Layout
Production Channel Rate

"Envision and Think In Terms of the Future State"

Sabrina Hannigan

TransformationalOutpatientPharmacy.com

A VP of Pharmacy cautioned me at our first encounter that he did not want his pharmacy to run like a drug chain pharmacy. My response was "Then why did you design it like one?". If you have ever asked yourself why your pharmacy is not working as well as retail despite the resemblance, the porosity of your production channel is a more likely answer than staff performance.

Overview

- Hospitals should build outpatient pharmacy programs by *first* identifying the demands of their markets.
- Small windows of opportunity for delivery command high integrity production channels and multiple delivery systems
- Production channel integrity requires plugging channel time loss to leakage, interruptions, and traps.

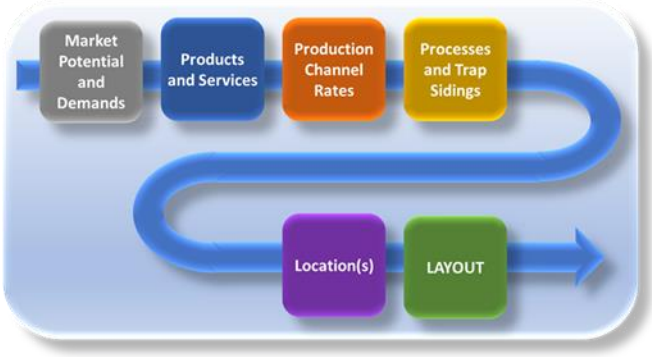
A disconnect between market requirements and layout can cause outpatient pharmacies to fall short of expectations. The pharmacy must be tuned to keep up with the demands placed on it by hospital markets. The chain drug store works because engineers tune layout to a limited, highly resilient retail market. Hospitals must tune the pharmacy to complex, demanding, and unforgiving markets.

The importance of delivery products depends on the resilience of a market. The hospital staff market, for example, is more resilient than patient markets. Operations can schedule production channels with greater flexibility for the staff market. And, as it turns out, keeping staff *out* of the primary counter queue is essential to the success of the pharmacy.

Hospitals should build-out an outpatient pharmacy program by first identifying the demands of their markets and the products required to satisfy those demands. Just because drug chains get away with a *profit*-centric product does not mean hospitals can. Retailers know what customers want. The difference is they do not satisfy these needs because *their* customers have *nowhere else to go*.

Delivery requirements set the window of opportunity for each market. It is the most important market driver for outpatient pharmacy products. The effective outpatient pharmacy will use a delivery *matrix* to push and pull product within this small window to reduce the risk for queue balking and reneging.

Diagram (1)
LAYOUT PRECEDENTS

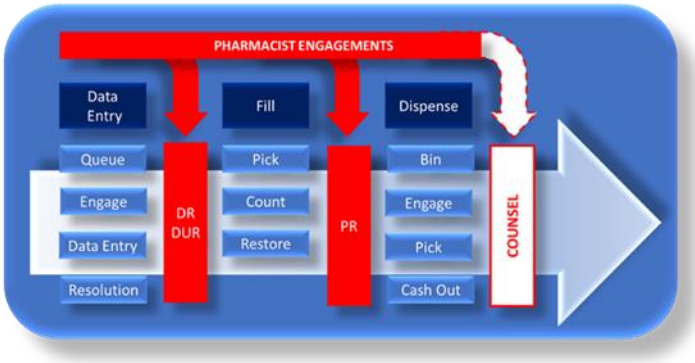


The type of market and patient ability to pay dictate delivery windows of opportunity. It is fair to say that insured patients arriving at the counter are far less forgiving than those needing financial aid, and staff markets offer greater delivery flexibility. It makes sense to take advantage of this difference in elasticity when building out requirements for a delivery matrix.

Illustration 1 shows a simple production channel. And, if the production channel ran like a track relay race, it could keep an output rate consistent with the design. But pharmacy does not run as smoothly as a relay race. Sometimes the first runner is slow to get off the block or the second runner is not on the track at the right place or right time.

Outpatient pharmacy production channels must perform with a high level of output rate integrity. Each step in the process, gap between processes, and change of hands in the fill and delivery of a scrip has the potential for reducing the integrity of the channel and slowing the rate of output.

Illustration 1
Simple Production Channel



There is no such thing as '*just a little time'* when it comes to product delivery. Lost time is not recoverable. The cost of lost time must be born by someone. The patient bears the cost of lost time in retail because they do not have a choice. This is not true for hospital markets except for those needing financial aid to afford medication.

Time loss in the outpatient pharmacy production channel is far more costly from a consumer point of view than in retail. Failure to deliver within the window of opportunity, or a perception that delivery expectations will not be met, result in lost scrips and increased risk to therapeutic outcome.

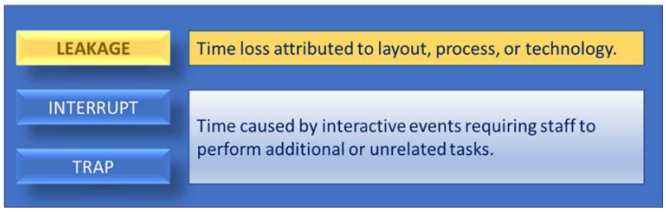
Wait lines devastate outpatient pharmacy. Insured patients are quick to balk and renege at delays. Wait lines grow until patients stop entering the line or the pharmacy adds servers greater than the number of patients entering the line. Even so, the damage has been done and will continue until the line is gone.

Example: A client was unable to take advantage of a sizeable insured market in a good gateway location. At times, they would have three windows open with no affect on the line and wait time continued to grow. I asked them to create a trap siding to improve in-take rate. Daily scrips increased as the line size dropped. Margin improved as more insured patients risked using the pharmacy.

Hospital outpatient pharmacy works with more complex realities than a retail drug store making porosity more of a concern. If you have ever asked yourself why your pharmacy is not working as well as retail despite the resemblance, the porousness of your production channel is a more likely answer than staff performance.

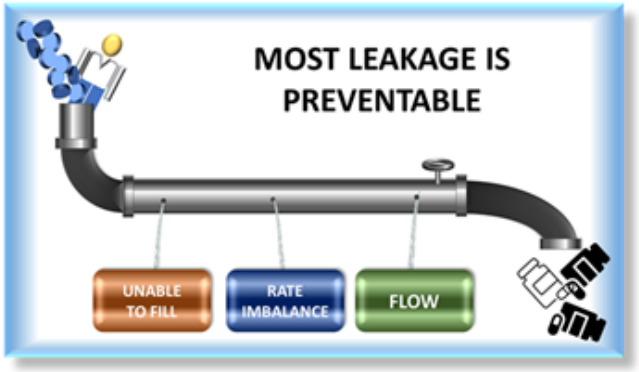
So, what causes the porousness that deteriorates a production rate? Illustration 2 shows three types of channel interference that contribute to porosity that hospitals must avoid with the right design for layout, process, and technology.

Illustration 2
Production Rate Deterioration



Leakage is time (rate) lost *within* a production channel most often caused by layout, process, and technology. Leakage occurs if process includes non-productive actions or events. Illustration 3 identifies three of the most common causes for channel leakage.

Illustration 3
CHANNEL LEAKAGE



Unable to fill leakage refers to processes that begin and end before the process can complete. Finding that a drug is out-of-stock after printing a label is an example of this kind of leakage. This is the worst kind of leakage because it consumes channel time without contributing to output.

Rate imbalance leakage typically occurs when the output rate of a process is greater than or less than the output rate of any subsequent process. Time is not usually lost to the channel (because the work-in-process continues to move forward), but it results in channel idle time, diminished output rate, and increases wait time.

Performance affects rate balance. More often than not clients cannot tell me how much time a process should take, or which staff member consistently underperforms expectations and by how much time. No, we are not machines (not that they are not already available for *many* tasks.). But *everyone* is expected to perform at a consistent level of reasonable output.

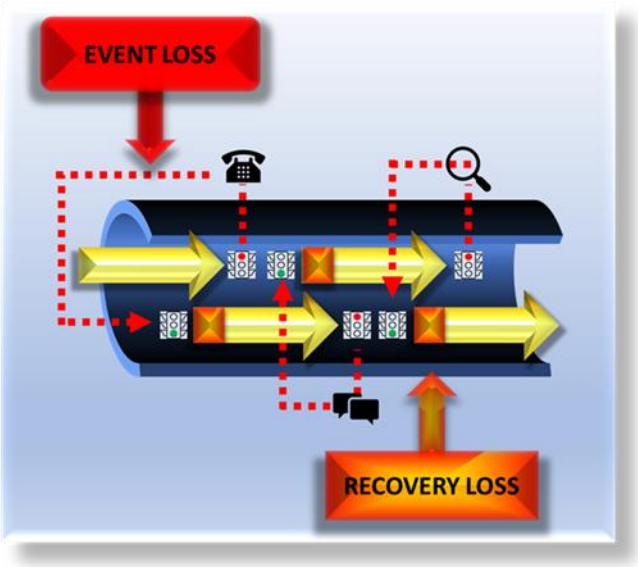
Flow leakage is time lost (or used in addition to productive time). It is typically associated with layout. The wrong shelf layout or design uses up more pick-and-return time than a correct one. Something as innocent and well-intentioned as a chair can be a source of leakage. A fixed layout inherently has more leakage than other types. Wrong equipment, misuse, or ***not*** using available equipment, can also be a source of flow leakage.

Leakage is also *combinative* (a single process performed multiple times). Normally we can think of flow leakage as discreet (related to a single process) because most scrip production channels complete one scrip order at a time. ***Not*** filling more than one vial during a process is a source of pick-and-return leakage.

Interrupts remove the focus (and time) of attention from the channel. For production channels to reach engineered rates, material and information flow must be continuous. Most interrupt agents can be managed out of the production channel. For example, calls to a chain drug store are routed to call centers to lower the frequency of calls that interrupt pharmacy staff.

Illustration 4 shows three **channel interrupt** events; phone, conversation, and search outside the channel. Each interrupt is comprised of an *event* and *recovery* time loss. The *event* loss refers to the time an event delays the process in the production channel. *Recovery* loss refers to the time it takes for staff to *reconnect* with the task they were performing prior to the interrupt, and in some cases, restart a task.

Illustration 4
CHANNEL INTERRUPTS



Interrupts are often self-inflicted and avoidable. For example, a client pharmacy with 900 daily scrips scheduled more pharmacist hours than would otherwise be needed. As it turned out, technicians were poorly trained and found it easier to ask pharmacists questions or even perform certain technician tasks. The loss of pharmacist time was offset by adding more pharmacists to the schedule.

Social friction is another avoidable channel disrupt. A client and I were observing workflow when I remarked "that's $15 you will never get back …". I had been observing a pharmacist who left his product verification station to answer a tech question. The contact between the two devolve into a personal conversation of nearly 10 minutes. In addition to profit loss,

1. 20 scrip baskets piled up on carts and the floor next to his station during that period
2. The filling technician left her station to find a cart after the pass-through shelf was full.

Social friction is not limited to one-on-one engagements. It can also be caused by poor work behavior. For example, a technician had taken up half the pass-through shelf with a stereo receiver and speakers. Others found the music distracting and interfering with their work. Similarly, although product verification pharmacists were not tasked with answer incoming calls, a phone was set-up at their station so calls could be forwarded.

Multi-tasking is not necessarily a good thing. A costly interruption occurs when channel staff multi-task work outside the channel. The most common mistake is for a pharmacist to take a call while urgent work-in-process remains in the channel. When you consider that a pharmacist spends less than a minute on product verification, a 5-10 minute phone call creates a significant loss of unrecoverable time to the channel.

Traps are specialized or otherwise divisible tasks, processes, or even production channels, that must be performed for some patients or scrips. Common traps are patient questions at drop-off or pick-up, scrip processing issues, or financial support. To be sure, traps come in all shapes and sizes and can significantly deteriorate production channel through-put rate(s) if not handled properly with layout and process.

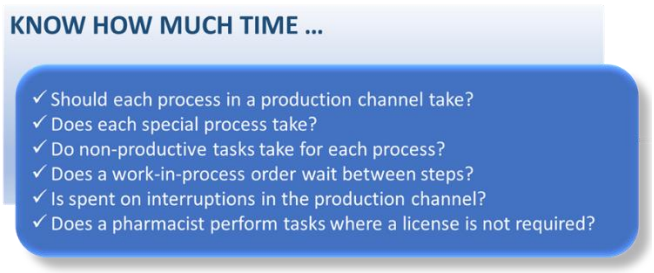
Eliminating Production Channel Rate Deterioration

Eliminating all causes for production rate deterioration is not really possible. Leakage and disruption can happen to the best locations and layout. The key is to lower the frequency and size of agents slowing the delivery rate to the point where the pharmacy serves all markets efficiently and effectively.

Look for reasons why your pharmacy cannot immediately hand a patient their medication in lieu of a prescription. This is 100% patient-centric and the patient bears no burden of the delivery process. The simple fact is that this is entirely possible for some patient markets and some medications.

Eliminating time loss in the production channel begins with asking the right questions. Illustration 5 gives some example questions.

Illustration 5
FINDING LEAKS AND INTERRUPTIONS



Exercise (1)

Have the pharmacy staff keep track of everything that interrupts or slows them down for one day.

This often eye-opening exercise helps identify:

- ✓ Choppiness of the production channel
- ✓ Channel interrupting agents
- ✓ Underlying process problems
- ✓ Staffing issues
- ✓ Patterns of interruptions

Exercise (2)

Time stamp work-in-process in and out of *each* process in the production channel.

This exercise helps identify:

- ✓ How well work-in-process moves through the channel
- ✓ Problem medications
- ✓ Equipment bottlenecks
- ✓ Process balancing requirements
- ✓ Potential for wait time improvement
- ✓ Periods of higher and lower channel flow rates

Exercise (3)

Create a medication pick-and-return map for a day. Use a time stamp to record pick start/end, return start/end times on an index card that includes either pick location, or if a shelf index system exists, the medication. Calculate total feet and time used for each fill.

This exercise helps identify:

- ✓ Inventory management issues
- ✓ Shelf design, layout, or function issues
- ✓ Leakage

The above three exercises will help get you on your way to a better understanding of the importance of production channel integrity and layout to wait time, as well as, give you a starting point for making changes.

Next …

If you did not want to run like a drug store, then why did you design the pharmacy to look like one? Pharmacy management is quick to remind me that they do not want to run like a chain drug store. It is an unnecessary caution because the simple fact is that retail clones do not work as outpatient pharmacies.

We will look at reshaping the outpatient pharmacy production channel in future articles on layout. We will examine how dynamic layouts are better suited for the outpatient pharmacy than fixed layouts. We will also look at the impact of fixture design on production channels.

Footnotes

About the Author

Sabrina Hannigan is a retired major drug chain executive with over three decades experience in site analysis and operations optimization. Upon retiring, she contracted with a healthcare consulting firm to consult on a broad range of operational topics specific to build-out of an outpatient pharmacy service.

As an independent consultant, Sabrina recognized that retail solutions were not transferable and created an outpatient pharmacy business model incorporating methods and processes experienced over forty years in manufacturing and retail.

Sabrina is passionate about the future of healthcare and envisions hospital-centric solutions for improving therapeutic outcome and population health. Towards this end, she continues to develop new processes and methods for outpatient pharmacies.