



## Improvements Across Medication Management at a National Top 10 Academic Medical Center

A national top 10 academic medical center and leader in healthcare innovation engaged Tefen to improve the efficiency and effectiveness of medication management for their inpatient pharmacy by optimizing the reliability of medication administration throughout the hospital to improve safety, compliance and service levels throughout their medication management process.

### Challenge

Similar to many academic medical centers, the hospital was faced with a variety of challenges including:

- Increasing medication errors with long unacceptable turnaround times for orders
- High levels of inventory in multiple locations across the hospital's footprint
- Cluttered work areas that decreased staff productivity and encouraged expiry items to collect
- Staffing schedules that did not meet clinical and patient demand on a regular basis

### How Tefen Helped

Tefen utilized a hands-on participatory and phased approach to address our client's operational challenges. This phased approach consisted of an in-depth diagnostic and collaborative implementation. The diagnostic phase focused on the detailed analysis of the Current State of the operations and the root causes impacting performance. Throughout the diagnostic, Tefen partnered and facilitated cross functional work groups in operational analysis of the Medication Management processes. These core work groups observed activities throughout the pharmacies, nursing units, physician and interdisciplinary rounds, conducted surveys, interviewed employees, and performed key data analysis to support and quantify opportunities.

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Upon completion, Tefen found hidden capacity in the hospital's current systems and processes including, inefficient use of resources, gaps in communication, lack of standardization in the distribution network, and poor data integrity. Once the key opportunities were identified and quantified, Tefen worked with key client stakeholders to develop a detailed implementation plan. To maximize the quality of patient care and the hospital's investment, Tefen prioritized these improvements and partnered with the hospital to develop and lead cross functional improvement teams focusing on implementing solutions in 4 key areas: internal distribution network order fulfillment, inventory management and staffing/resource management.

### **Medication Management:**

#### *Internal Distribution Network:*

Tefen reviewed the medication administration process from the time the doctor wrote a patient's prescription until the time that it was made available to the floor. To understand this, Tefen performed many observations and time studies to understand the multitude of routes an order takes, the inefficiencies and workarounds, and the miscommunications due to lack of standardization. To enhance the reliability of the distribution, Tefen applied Lean principles to remove the inherent wastes and optimize flow. By analyzing the root cause of the turnaround times, Tefen was able to improve how quickly STAT and Routine orders were delivered to the floors. In addition to this, cross-functional clinical teams developed an error log to track order clarifications and medication delivery issues as part of a continuous improvement effort.

#### *Order Fulfillment:*

Tefen began by performing a cost-benefit analysis of the vendor managed inventory system used by the hospital and found the current rate of order fulfillment was not in line with the hospital pharmacy service level goals. In its place, Tefen recommended using in-house picking which eliminated batching and was more cost effective. Additionally, communication channels were renewed between the vendor and the hospital pharmacy with on-site visits and the service level to patients and staff increased. The improvement team optimized the use and application of the institutions Pyxis™ System and optimized the Medication Management process from order to drug administration. This included the frequency of deliveries and centralized drop-off locations for all patient medications in addition to implementing a simple visual medication delivery signal to reduce inefficiencies.

#### *Inventory Management:*

In the main pharmacy, Tefen created a list of fast-pick drugs, defined par levels according to usage, removed unnecessary inventory to increase capacity and sorted equipment and supplies. These implementations increased service, compliance, and lowered cost. Within the main pharmacy and across the multiple satellite pharmacy locations which required inventory optimization, Tefen revised the drug list, set Pyxis™ par levels according to usage and implemented a kanban system to signal appropriate inventory replenishment quantities.

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### Staffing/Resource Management:

Tefen performed time studies along with statistical data analysis of demand trends by hour of day, day of week to complete a comprehensive staffing gap analysis. New shift patterns were developed, eliminating unnecessary shifts and creating a floater coverage pattern to meet the hospital's needs for flexibility.

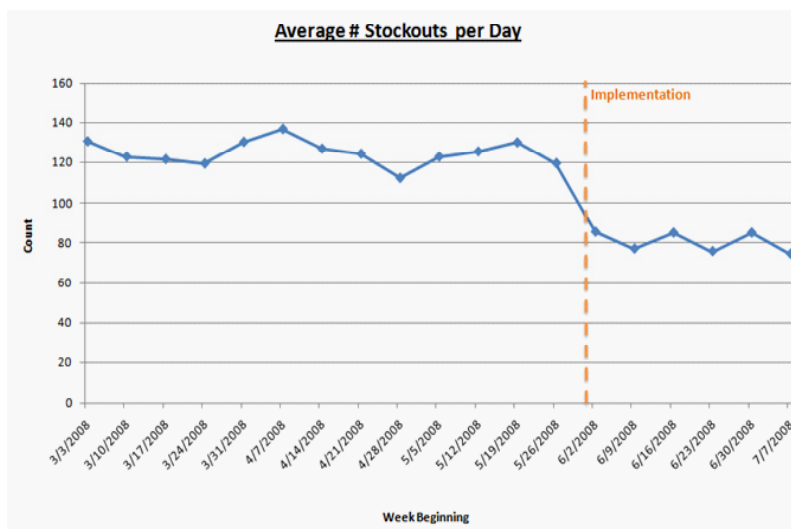
## Results Achieved

Tefen's participatory, phased and data driven approach which partnered with client personnel including Sr. Management, clinical, non-clinical staff and physician leadership resulted in achieving significant results in inpatient flow and medication management.

### Medication Management:

- Technician order fill time was reduced by 30%
- Reduced inventory in satellite locations by 30%
- Improved service levels and reduced sorting time by 40%
- Increase in Pyxis utilization and standardized review process by 28%
- Pharmacy improvements totaled \$510K in annual cost savings

Tefen's expertise across the continuum of care increased capacity and decreased costs, while improving patient satisfaction and developing a culture of sustainable continuous improvement.



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## About Tefen

Tefen is an international management consulting firm committed to improving overall operational effectiveness for Fortune 500 companies around the world. The firm's main areas of focus include Strategy, Operations Excellence, Project Management and Organizational Development. With its "hands-on" approach philosophy, the company has achieved tremendous success in delivering quantifiable and value-driven results for its clients in a variety of industries, including healthcare, life sciences, general manufacturing, high-tech and financial services. All of Tefen's support programs are ISO 9001 certified. Tefen currently employs over 300 professionals worldwide.

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