

# Hospital Operating System

## Unleashing Throughput Potential

### Executive Summary

#### Introduction

In the business management theory of constraints, throughput is the rate at which a system achieves its purpose. For a hospital the purpose or “aim of the system,” as Dr. W. Edwards Deming refers to it, is to deliver quality patient care as efficiently as possible. Unfortunately, the fragmentation of a hospital’s activities across departmental operational silos propagates waste, compromising throughput.

The assertion of this white paper is that a hospital will not be able to manage throughput for the achievement of its purpose until it becomes a system of *interconnected* activities.

#### Case Study

Mercy St. Vincent Medical Center, a 400+ bed teaching hospital in Northern Ohio, is the critical care regional referral and teaching center within the Mercy Health Partners (MHP) system, a seven-hospital faith-based system serving Northwest Ohio and Southern Michigan. MHP is a member of Catholic Healthcare Partners (CHP), which consists of 36 hospitals, long-term care facilities, hospice programs and home health agencies across five states.

**“Healthcare is characterized by fragmentation — among disciplines, among departments, among organizations, and among geographic locales — while those it serves depend on coordinated effort. The system propagates waste: waste of time, resources, and good will.”**

(To Err is Human – The Institute of Medicine)

**“We had layered one improvement program on top of the next in an attempt to secure breakthrough performance but never achieved sustainable improvement.”**

(Samantha Platzke, Senior Vice President, CFO, and Chief Transformation Officer - Mercy Health Partners)

By all external standards, Mercy St. Vincent Medical Center has been a high performing hospital: winning a top 100 hospital designation, earning a JD Powers & Associates top performer award, and rating equally well on other standards of performance from patient satisfaction scores to regulatory compliance and core measure outcomes. Like many other high achievement hospitals, they had already initiated a Lean and Six Sigma department in 2006, a DRG assurance program, employee retention and training programs, a top-ranked patient satisfaction improvement program, and a CPOE/EMR system.

#### Results

One year after linking disparate patient care activities into one interconnected hospital operating system, Mercy St. Vincent achieved significant results:

- reduced their ALOS by 14.3%
- lowered their direct costs by \$8.6 million
- increased their admission volume by 11.2%

To date, these improvements resulted in a total impact of \$10.3 million annually. Additionally, they saw improvements in patient and physician satisfaction, and quality and safety measures. Results were validated by the Health Systems Institute at Georgia Tech.

**“It was not until we appreciated the impact of our disconnected processes and the associated non-value added ‘white space’ waste, that we were then able to identify the levers necessary to re-align our organization around a system aim of quality patient throughput.”**

(Imran Andrabi, MD, President/CEO Mercy St. Vincent)

#### Approach

The essential ingredients in Mercy St. Vincent’s transformation were:

- Mindset – System Aim
- Methodology – Transformation Engineering
- Technology – Adaptive System Intelligence

To better understand the context and approach that facilitated Mercy St. Vincent’s transformation, the three essential and interactive ingredients are explained in more detail.

## Mindset – System Aim

When Mercy St. Vincent clarified that “quality patient throughput” was their system aim it became the lens through which they evaluated every current process, role, and function. The realignment of their operation to that system aim gave them the framework by which to make trade-off decisions as they selected their future state.

**“It is important not to define the aim of a system in terms of activity or methods. It must always relate directly to how life is better for everyone. The aim of the system must be clear to everyone in the system. The aim must include plans for the future. The aim is a value judgment.” (Edward Deming)**

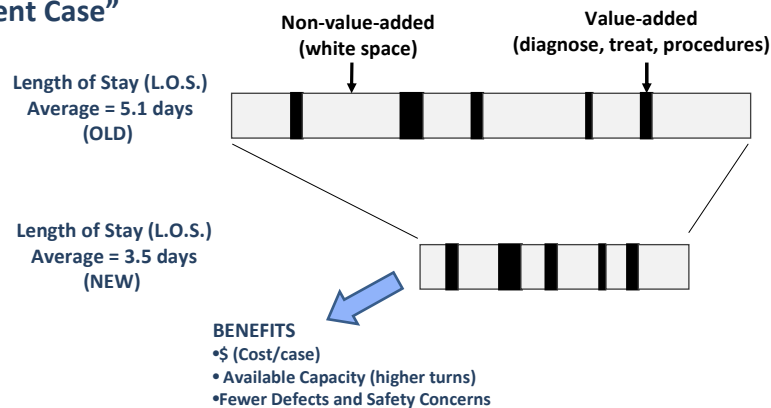
Examples included:

1. Launching a care coordination center as a hub for hospital-wide operations
2. Moving case management more into the forefront of operations
3. Designating clinical care coordinators in each operational unit who were closely aligned with the hub

## Methodology - Transformation Engineering

The fragmentation of processes and daily chaos of healthcare operations was taken into account when evaluating Mercy St. Vincent’s system throughput opportunities. As in most hospitals, non-value added actions (i.e. “white space”) were abundant within Mercy St. Vincent’s operations. If this waste could be reduced it would translate into improved patient throughput.

### “The Average Patient Case”



Dr. W. Edwards Deming instructs that “If you can’t describe what you are doing as a process, you don’t know what you’re doing.” The dynamic interconnectedness of hospital operating processes has to be well understood before determining future state throughput opportunities.

For Mercy St Vincent, this important principle was used when developing the current state to future state process re-design. Process flows from admission through discharge were all simultaneously evaluated through the system aim lens of “quality patient throughput,” and future state designs reflected the dynamic of the interconnected flow processes.

## Technology - Dynamic System Intelligence

To successfully leverage and sustain future state improvements within a hospital operating system, the technology must incorporate dynamic interconnectivity so that the future or “ideal” state can be maintained while managing the daily chaos of hospital operations. To support the new processes, future state designs were translated into standard operating procedures and hardwired into their hospital operating system.

Major milestones or key performance indicators (KPI’s) for all critical future state processes were identified and linked to the respective sub-processes, so that Mercy St. Vincent could “work on their business, while they were working their business.”

## Summary

The Mercy St. Vincent case study demonstrates that a hospital will not be able to manage throughput for the achievement of its purpose until it becomes a system of *interconnected* activities. The outcome of this *connection* is more predictable service delivery, consistent quality and performance outcomes, and improved patient, provider, and staff satisfaction.

Further details of the transformation partnership are outlined in the white paper: “Case Study: Mercy St. Vincent Medical Center.”