Virginia Mason Medical Center has overhauled its business philosophy by taking a page from Toyota’s manufacturing system. The goal: to gain a quality, safety, and performance edge. Can the plan work in your institution?

In June of 2002, Virginia Mason Medical Center adopted a new production system based on a highly successful automobile manufacturer’s system and adapted it to the healthcare setting in order to improve the quality of care, increase productivity, and decrease costs. Based on the Toyota Production System (TPS), the new system—the Virginia Mason Production System (VMPS)—has enabled the medical centre to set new patient care quality standards for the healthcare industry (Table 1). “The VMPS management approach is used to make real and measurable improvements in safety, quality, service, staff satisfaction, and cost performance,” explains Gary S. Kaplan, MD. “Our system helps identify and eliminate waste and inefficiency in numerous processes that are part of any healthcare experience. By streamlining the repetitive and low-touch aspects of care delivery, the medical staff can then spend more time talking with, listening to, and treating patients.”

**“LEAN THINKING”**

The concept “lean thinking” originated from the TPS and, simply stated, means using less to do more (Table 2). This concept is critical in the VMPS because it maximizes value...
and eliminates waste. “In the delivery of quality patient care in the hospital, it is imperative to ‘manufacture without waste’ in order to reduce costs,” Dr. Kaplan says. “More than half of the medical centres in the United States waste their available resources. Identifying value-added and non-value-added considerations are steps in the right direction.”

Dr. Kaplan also says that institutional leadership needs to initiate a movement towards lean thinking in order for the VMPS to be successful. “Training programmes, mastery tracks, and an entire core curriculum must exist for senior management and staff alike in order to be successful at lean thinking. A strategic plan should be universally agreed upon by all stakeholders that change is necessary. There must be a commitment to change if the goals are to eliminate waste and improve patients’ quality of care.”

**KEY COMPONENTS**

Rapid Process Improvement Workshops — tools derived from the TPS — are key components of the VMPS. In these workshops, groups of staff members examine their processes, eliminate any wastes, search for ways to reduce variation, create standard work, and eliminate non-value-added work. All of these steps help reduce mistakes and eliminate defects, according to Dr. Kaplan. “These workshops represent a huge breakthrough because traditional quality improvement plans usually take months before they become a reality.” As a specific example, the Rapid Process Improvement Workshops have reduced the time it takes to report test results to the patient by more than 85%.

Another component of the VMPS is the Production Preparation Process workshop, or 3P. Management and staff discuss approaches and methods for designing new space within the hospital, importing new equipment, or building a new facility. “We idealize design and structure, but focus on these changes from the patient’s standpoint,” according to Dr. Kaplan. The VMPS strategic plan also focuses on organization of the daily workplace to create an efficient and safer environment, embedding quality and safety into every product and service, and standardizing practices and procedures to decrease costs and reduce errors.

Virginia Mason has also implemented a patient safety alert system to reverse mistakes at the source and prevent them from being passed on and becoming defects. “Every member of our staff is expected to be a safety inspector,” says Dr. Kaplan. “When a patient safety alert is called, those involved stop what they are doing and a response team quickly works with the group to review and resolve the problem, preventing an error or potential error from being passed on in the process. This allows us to assess risk, develop a corrective action plan, implement the plan, and provide continuous monitoring to assure the safety of our patients, visitors, and staff. All of these components of the VMPS are essentially about creating time, operating more efficiently, and generating higher physician, surgeon, and staff satisfaction.”

**AVersion To Adoption?**

According to Dr. Kaplan, some management and staff may be anxious or sceptical about adopting the VMPS. However, he says “the best way to get people to see the benefits and feel the opportunity this system provides is to give them opportunities to touch these methods, experience them firsthand, and apply them to their own work. By implementing the VMPS, patients will benefit from greater safety, less delay in seeing their physician for care, more timely results and treatment, and more time with their provider. The staff benefit by having less rework and more opportunities to care for patients. Once you see the remarkable outcomes from the TPS, then any scepticism fades. By using methods from manufacturing, we’re increasing the time available for meaningful physician-patient interaction while simultaneously operating more efficiently and improving care processes.”

**REFERENCE LINKS:**

Toyota Production System
Recommended Reading:
- A World Class Production System – John Black
- Lean Thinking - Womak & Jones
- Toyota Production System – Taiichi Ohno
- Zero Quality Control – Shigeo Shingo
- A Study of the Toyota Production System from an Industrial Engineering Viewpoint (Produce What Is Needed, When It’s Needed) – Shigeo Shingo
- The Hunters and the Hunted: A Non-Linear Solution for Reengineering the Workplace – James B. Swartz


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