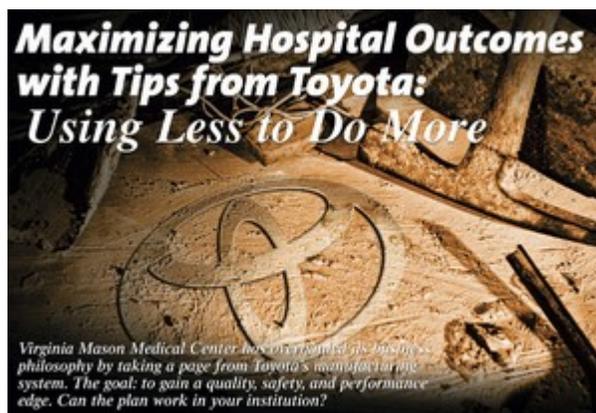


# Physician's Weekly®

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October 3, 2005 Vol. XXII, No. 37

## This Week's Lead Story



### ■ Maximizing Hospital Outcomes with Tips from Toyota: Using Less to Do More

*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 center 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 centers 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 programs, 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 skeptical 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 skepticism 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."

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**Table 1**

## **Adopting the Virginia Mason Production System**

***Adoption of the Virginia Mason Production System (VMPS) requires the following steps:***

- A patient-centered plan.
- The full support of Virginia Mason leadership.
- Focus on achieving zero defects.
- A goal to provide the safest environment for patients with the best possible outcomes.

***Important First Steps in Implementing VMPS:***

- Commitment to the “Patient First” approach as the driver for all processes.
- Create an environment in which people feel safe and free to engage in improvement—including the adoption of a “No-Layoff Policy.”
- Implement a company-wide defect alert system called “The Patient Safety Alert System.”
- Encourage innovation and “trystorming” (beyond brainstorming, trystorming involves quickly trying new ideas or models of new ideas).
- Create a prosperous economic organization primarily by eliminating waste.
- Require accountable leadership.

Source: Virginia Mason Medical Center, Going Lean in Healthcare, White Paper for IHI

Table 2

## Lean Thinking

*Virginia Mason Medical Center's principles of lean thinking include:*

### **Leadership:**

- Implementation of lean thinking requires major change management throughout an entire organization.
- Strong commitment and inspiring leadership from senior leaders is essential.

### **Culture:**

*Within the culture of the institution, leaders must:*

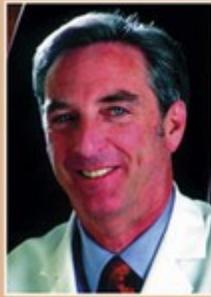
- Evaluate the organizational structure and work.
- Minimize unnecessary hierarchy.
- Organize staff into operational teams based on products or services.
- Establish a clear vision statement that guides staff to make the right choices.

### **Process:**

*Physicians, hospitals, insurers, the government, payers, and other staff have often driven processes within an institution. The value must be changed and focused toward providing patients with their wants/needs. A perfect process creates the right value for the patient. In a perfect process, every step should:*

- Create value for the customer
- Produce a good result every time
- Produce the desired output, not just the desired quality, every time
- Not cause delay
- Remain flexible
- Remain linked by continuous flow

*Failure in any of these dimensions produces some type of waste.*



**Gary S. Kaplan, MD**

Chairman and CEO  
Virginia Mason Medical Center

## 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
- Confucius Lives Next Door: What Living in the East Teaches Us About Living in the West – T. R. Reid

For more information on the Toyota Motor Corporation's Toyota Production System, go to <http://www.toyotageorgetown.com/tps.asp>.

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