

Integration of Toyota Principles in Healthcare for Quality Improvement

*Vijayakrishnan Poondi Srinivasan, MS, LSSBB
Quality Management Engineer
Maine Medical Center*

Learning Objectives:

1. State the Principles of Toyota Production System
2. Describe the need for application of Toyota Principles in Healthcare
3. Explain the integration of Toyota Principles with key elements of Healthcare

Toyota Production System (TPS) is a manufacturing philosophy created by one of the leading automobile manufacturing companies called “Toyota” during post World War II Japan. TPS uses a process-oriented approach focusing on respect for people, teamwork, mutual trust and commitment, elimination of waste, and continuous quality improvement. The principles of TPS are all statements of beliefs and values focused on Philosophy, Process, People, and Problem Solving. In contrast to traditional hierarchical management structures, TPS values the importance of partnerships between management and employees at all levels.

Similar to manufacturing organizations, healthcare is facing challenges from rising labor and material costs, intense competition, scarce human resources, customer demand for impeccable quality, and stringent safety and performance standards. Integration of TPS in Healthcare helps to create an environment to do the right things – improve flow, improve quality of life of people, reduce waste and focus on continuous improvement. Virginia Mason was the first Health System to integrate Toyota management philosophy throughout its entire system. They created Virginia Mason Production System (VPMS) by combining TPS and elements from the philosophies of kaizen (see PSQI Hot Topic January, 2020; S.Tyzik) and lean to improve quality and safety, reduce the burden of work for team members, and decrease the cost of providing care.

In general, application of TPS in Healthcare is mainly focused on operational aspects using lean tools. A more integrative approach focused on task, structural, and cultural level of the organization is discussed below for successful implementation of TPS in Healthcare:

1. All work must be highly specified as to content, sequence, timing, and outcome – accurate documentation of Patient’s medical record, developing processes to streamline the workflow, and tracking patient-centered outcome measures.
2. Every customer-supplier connection must be direct, and there must be an unambiguous yes-or-no way to send requests and receive responses – direct communication between the patient and the caregiver, improved communication between caregivers regarding the patient’s condition and plan of care, and secured access to patient information.
3. The pathway for every product and service must be simple and direct – develop and implement “Clinical Pathway” for each treatment initiative based on the “best practice” methodology.
4. Any improvement must be made in accordance with the scientific method, under the guidance of a teacher, at the lowest possible level of the organization – identify quality improvement projects that focus on improving the workflow of front-line staff and patient safety.

The principles listed above specify how the work is performed (focused on patient care), how knowledge is transferred between workers and within the system (improving the quality of life of caregivers), how production is coordinated between tasks and services (improved flow within the system), and how the process is controlled, measured, and sustained (reduce waste and focus on continuous improvement). Therefore, approaching improvement efforts in healthcare using the principles listed above will create an environment for achieving the organization's strategic goals much like Toyota – think, develop processes, develop people, and solve problems.

References:

1. Jeffrey K Liker, Michael Hoseus “Toyota Culture - The Heart and Soul of the Toyota Way”, edition 2008.
2. Kevin F Collins, Senthil Kumar Muthusamy “Applying the Toyota Production System to a Healthcare Organization: Case Study on a Rural Community Healthcare Provider”, Quality Management Journal, 2007.
3. Gabriela S Spagnol, Li Li Min, and David Newbold “Lean Principles in Healthcare: An Overview of Challenges and Improvements”, IFAC, 2013.
4. Joanne Farley Serembus, Faye Meloy, and Bobbie Posmontier “Learning from Business: Incorporating the Toyota Production System into Nursing Curricula”, 2012.
5. David M Clark, Kate Silvester, and Simon Knowles “Lean Management Systems: Creating a Culture of Continuous Quality Improvement”, 2013.
6. Virginia Mason Production System - <https://www.virginiamason.org/VMPS>