



# CRCST Self-Study Lesson Plan

Lesson No. CRCST 134 (Technical Continuing Education - TCE)

Sponsored by:

**3M Health Care**

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# LEAN MANAGEMENT PRACTICES IN CENTRAL SERVICE DEPARTMENTS

## LEARNING OBJECTIVES

1. Identify the seven basic types of resource waste
2. Discuss how lean management concepts can be effectively used in healthcare organizations
3. Explain basic elements in lean management for Central Service operations
4. Review organizational requirements to implement lean management practices

**L**EAN MANAGEMENT PRINCIPLES EMERGED AS A RESULT OF production line systems designed to produce standard products, such as automobiles, with no variations. Its main purpose is to reduce seven sources of waste that are comprised of non-value added activities. Over time, the concept has been expanded to address customers' needs and expectations, in addition to improving quality and reducing time delays and costs by emphasizing continuous improvement and employee involvement.

## OBJECTIVE 1: IDENTIFY THE SEVEN BASIC SOURCES OF WASTE

The seven main types of resource waste are:

- 1. TRANSPORT** – The movement of products or materials throughout the operation. More waste occurs as there are more and especially unnecessary movements. Poor layout and design of production areas are a frequent cause of unnecessary transport. Example: in some Central Service (CS) departments prepared sets must be moved to another table for wrapping.
- 2. WAITING** – Any time that an employee or a machine is idle. Reasons may include

inappropriate instructions and poorly designed workloads. Example: in some CS departments instrument sets are loaded onto a cart and then must wait to be sterilized because of improperly-designed workloads.

- 3. OVER-PRODUCTION** – The production of more products than the customers want. This can result in higher-than-necessary inventory costs and wasted transport, manpower, and raw materials costs. Example: CS managers sometimes schedule the production of excessive quantities of instrument sets.

This series of self-study lessons on CS topics was developed by the International Association of Healthcare Central Service Materiel Management (IAHCSMM). Purdue University's Extended Campus and IAHCSMM both offer grading opportunities.

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**4. DEFECTS** – A defect is anything that does not meet required specifications. Any process that does not transform or improve a product or service in some way does not add value and contributes to waste. Example: a defect in an instrument set will interrupt the normal course of surgery.

**5. INVENTORY** – Some inventory is needed, but excessive inventory consumes finances, incurs space (almost always very limited in CS areas), and is at risk of becoming damaged or obsolete. Example: storing an unnecessarily large amount of packaging materials in the CS department may lead to waste.

**6. MOTION** – Any employee movement that does not add value is waste. Walking is the obvious one, but wasted movements can also include bending, lifting, twisting, and reaching. These problems often result from an inefficient system design. Example: a CS technician may need to walk away from the preparation table to get a wrapper.

**7. OVER-PROCESSING** – Any process that does not add value to the product. Example: some CS managers may keep logbooks of information that are not used.

## **OBJECTIVE 2: DISCUSS HOW LEAN MANAGEMENT CONCEPTS CAN BE EFFECTIVELY USED IN HEALTHCARE ORGANIZATIONS**

Lean thinking has spread to many organizations. Leaders recognizing the benefits are adapting the tools and principles beyond manufacturing to other industries, including logistics and distribution, services, retail, construction, and healthcare. For example, since CS departments can be thought of as production lines, many can benefit from the application of lean management concepts.

Lean healthcare management focuses on providing value to patients at less cost by eliminating wasteful activities.

In hospitals, numerous processes such as operations, surgeries, medical tests, patient admissions, emergency care, and routine patient check-ups are carried out on regular basis. As work is performed according to these established processes, different types of wastes and errors commonly occur. The biggest challenge in adopting lean management in healthcare is identifying non-value-added processes in which employees invest their time and energy.

For example, searching for supplies is a common activity that can consume significant amounts of time for nurses and other medical staff. If the needed supplies were always readily available, the time spent searching for them could, instead, be devoted to something more appropriate that focusses directly on patient care. Lean principles encourage staff members to invest their time and energy in delivering value-added services.

## **OBJECTIVE 3: EXPLAIN BASIC ELEMENTS IN LEAN MANAGEMENT FOR CENTRAL SERVICE OPERATIONS**

Lean management systems use five basic principles (5S: based on five Japanese words) and visual controls as the foundation of workplace organizational tools that provide the necessary groundwork for workplace improvement. These principles and visual controls ensure that there is a place for everything and that everything is in its place and clean and ready to use. The 5S principles follow:

**PRINCIPLE 1: SORT (SEIRI)** – Sort all objects by identifying those which are unnecessary and those which are indispensable for your department, and then eliminate all those that clutter work stations. Keep all necessary items at each work station. Eliminating unnecessary objects saves space, creates a nicer working area, and allows better work and traffic flow. Time is also saved that would

otherwise be wasted for allocating and collecting needed items.

Examples of unnecessary objects in CS areas often include damaged and unused surgical instruments and sets, old machines, brochures, and logbooks. The unused items are fully reprocessed when they are no longer needed, and this wastes time, packaging materials, and other resources. Note: instruments must be decontaminated prior to disposal or transfer from inventory. If the facility has a policy that instruments to be discarded must be sterilized in addition to being decontaminated, this policy should be followed.

Eliminating waste should be done systematically by marking unneeded items and moving them to a designated area where they should be discarded after approval by the appropriate CS or other administrator according to the facility's policy.

When it comes to waste, time is also a concern. There should be a balance between workflow and resources. The required labor hours should be calculated on a by-shift basis according to scheduled workflow to eliminate time waste. Then the number of persons in each position should be scheduled according to production forecasts. The calculations should include enough flexibility to cover necessary breaks, lunches, and the staff call-ins that may occur.

The department's pace should match the demands. Pick-up pace (the frequency with which items are collected from the dirty side of the Operating Room) and CS deliveries should match the system's demands and CS resources. After the demand is calculated, it becomes important to ensure that the available equipment and pace match demand so there is an even flow of products through the system. Preventing bottlenecks in work flow requires the CS Supervisor/Lead Technician to remain in contact with the OR and Obstetrics Supervisor/



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Charge Nurse. Schedules can change dramatically in an instant, and emergency surgeries can affect the rest of the day's schedule and workflow.

**PRINCIPLE 2: SET IN ORDER (SEITON)** – Establish and reserve a specific space for everything and always keep tools and other items in the places reserved for them, so employees can quickly and easily find what they need when they need it. In addition to saving time, consistently following this principle will make each working station look better, and it will be easier for CS techs to rotate into and from other work stations.

Examples of order relate to sorting by type, size, or color (color coding). Using illustrations of objects and signs to indicate their required locations will likely be helpful when work station storage spaces are designated. Places within the department should be designated for unidentified objects and surgical instruments

accidentally left outside a set.

Relations with the CS department's customers will also improve when storage locations have been established because the time that is saved when responding to requests will assist the customers in their patient service responsibilities. For example, delays in surgical cases and disputes between CS and OR personnel (“Who has the missing item?”) will be reduced.

It is also important to arrange each CS work station as efficiently as possible to reduce non-value-added actions and to improve ergonomics. For example, the sealing machines should be placed within a short distance from the packaging station. Also, the preparing, packaging and sealing processes should be arranged in a straight or a U-shaped line to make work flow more efficient.

**PRINCIPLE 3: SHINE (SEISO)** – Eliminate all trash and keep all CS work areas clean and ensure there are no anomalies

or defects. Cleaning must be a scheduled and routine chore. For example, properly cleaning the decontamination area after each load or at specified intervals helps to create a pleasant, calm and safe environment. A clean department promotes the department's prestige, and it also benefits the employees' health and can increase their job satisfaction levels.

When there is an ongoing emphasis on a cleaning regime that is part of the CS department's protocols, it becomes a routine and a habit. Some CS departments are located at old facilities, and the condition of out-of-date facilities may improve by proper cleaning, sorting and organizing.

Experienced CS managers understand that cleaning is not just housekeeping. Instead, it is a series of activities that promote efficiencies, improve safety, and ensure the use of standardized ways of working. Employees can become aware of problems as cleaning activities are performed and will be encouraged to make suggestions for improvement.

**PRINCIPLE 4: STANDARDIZE (SEIKETSU)** – Establish visual controls and standard operating procedures for the workplace and develop simple processes to keep the work stations and workplace from deteriorating. Visual controls include signs and instructions that enable the employees to understand what to do, how to do it and, when practical, use photos to show the tools and parts to be used.

The content sheets for instrument sets should be arranged in an efficient method and sorted by order and type of instrument so technicians can arrange the sets easily and faster. New items or sets should have detailed instructions with photos to help employees identify new items and understand how to dismantle and clean the instruments.

There should be a working procedure



for sets that must be returned to the operation room as soon as possible. It is useful to create a visual alert for these sets so all employees will know that the sets with a high processing priority. Another important visual alert involves clearly labeling sets with missing instruments. This will help prevent delays in the OR and promote the affected nurses' confidence in CS personnel.

All CS personnel should know their department's vision, goals and aims. It is also useful to share departmental operating results including production and error rates, workplace accident data, and other achievements, including quality control information with employees. Doing so will increase their interest in helping the department and increase their pride in it.

**PRINCIPLE 5: SUSTAIN (SHITSUKE)** - Keep a watchful eye on the evolution of the workplace, follow established standards, and maintain the discipline needed to ensure that these standards are upheld through regular inspections, audits and data collection. The data that is collected should be analyzed to evaluate the need for new standards of practice, resources and equipment.

#### **OBJECTIVE 4: REVIEW ORGANIZATIONAL REQUIREMENTS TO IMPLEMENT LEAN MANAGEMENT PRACTICES**

Implementation of a lean management system requires the creation of an organizational culture that is receptive to the concept. The employees will require training focusing on lean management activities (a resource commitment is needed), and open communication with the employees is important. Any existing roadblocks, such as rewards based on individual instead of team performance, general resistance to change, and organizational culture that does not support

quality will also need to be addressed.

Employee engagement is necessary at all organizational levels to achieve lean management goals, and employees should be empowered to assist in the development of a state-of-the-art workplace, including the design of efficient work flow processes.

Sustaining lean management practices requires continual effort and commitment from employees and managers. Training should be repeated at regular intervals for new staff members and to encourage supervisors and more experienced employees to help them consider additional ways to eliminate activities that do not add value.

#### **IN CONCLUSION**

The successful implementation of lean management in healthcare facilities yields higher quality service, better access, and shorter waiting times for patients, and more effective healthcare delivery. Medical and paramedical staff will also benefit because improved processes prevent errors and reduce stress levels and resource waste so facility personnel can focus on patient care. The healthcare organization enjoys long-term benefit from reduced costs and an improved reputation which are outcomes of better quality and service.

For employees to accept lean management, they must understand the purpose behind every task. Employee participation is needed at every level, and there should not be any communication gaps between the staff and the management. After an organization is familiar with lean management methodology, it takes no more than a few hours of observation on the frontlines to begin to identify opportunities for improvement. **C**

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# CRCST Self-Study Lesson Plan Quiz - Biofilms

Lesson No. CRCST 134 (Technical Continuing Education - TCE) • Lesson expires Jan. 2017

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## OBJECTIVE 1

- Poor layout and design of production areas are a frequent cause of which source of waste?
  - Over-production
  - Inventory
  - Over-processing
  - Transport
- Which source of waste can result in higher than necessary inventory?
  - Waiting
  - Over-production
  - Defects
  - Over-processing
- If a CS manager keeps a log book of information that is not used, this is an example of what source of waste?
  - Defects
  - Motion
  - Over-processing
  - None of the above
- A defect is anything that does not meet the required specifications.
  - True
  - False

## OBJECTIVE 2

- The concept of lean management began with the healthcare industry.
  - True
  - False
- The biggest challenge in adopting lean management in healthcare is:
  - Finding the time to do it
  - Obtaining information from tip level administrators
  - Identifying non value added processes
  - Purchasing capital equipment necessary to implement the process
- Lean management provides value to patients by:
  - Replacing people with equipment
  - Replacing equipment with people
  - Focusing on cost minimization
  - Eliminating wasteful activities

- Lean principles encourage staff members to invest time and energy in delivering value-added services.
  - True
  - False

## OBJECTIVE 3

- One step in the "sort" principle in lean management is to:
  - Establish and maintain cleaning schedules
  - Eliminate count sheets
  - Establish visual controls
  - Eliminate objects that clutter work stations
- Unneeded items do not generally require approval for elimination before they are discarded.
  - True
  - False
- Which is an example of an appropriate way to sort items?
  - By size
  - By color
  - By type
  - all the above

- The term, "seiso" refers to which principle of lean management?
  - Sort
  - Set-in-order
  - Shine
  - Standardize

- The terms, "cleaning" and "housekeeping" mean the same thing.
  - True
  - False

- Which lean management principle relates to establishing visual controls and standard operating procedures for the workplace?
  - Standardize
  - Sustain
  - Set-in-order
  - Sort

- Clearly labeling sets with missing instruments is an example of which lean management principle?
  - Sustain
  - Standardize
  - Set-in-order
  - Sort
- Evaluating the need for new standards of practice, resources, and equipment is an example of which principle of lean management?
  - The proper organizational culture
  - Employee training
  - Open communication
  - All the above

## OBJECTIVE 4

- Which is required to implement a lean management system?
  - The proper organizational culture
  - Employee training
  - Open communication
  - All the above
- Employee empowerment is an important element in implementing lean management practices.
  - True
  - False
- Which statement is true about sustaining lean management practices?
  - Once implemented, full attention to the process is no longer required
  - The process requires continual effort
  - The process requires continual commitment
  - B and C above
  - All the above
- Who should receive training at regular intervals to enhance lean management activities?
  - New employees
  - Experience employees
  - Supervisors
  - A and B above
  - All the above

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