Can Lean Six Sigma be the Remedy for Healthcare Quality Improvement? Implementing a New Philosophy in Rehabilitation

Caroline Ornelas, BSN, RN, CRRN, CBIS Lesley-Anne Bandy, BSN, RN, CRRN

UNC HOSPITALS
Chapel Hill, North Carolina

What is Lean Six Sigma?

- Lean thinking or "lean management" began in Japan after WWII when supplies and inventory were limited; the focus is on improving processes and systems in order to reduce waste and synchronize work flows
- Six Sigma developed within the manufacturing industry; statistical data analysis is used to reduce process variation and improve quality

How Can Lean Six Sigma Help Our Patients?

Lean Six Sigma can be applied to any healthcare organization. The focus is to analyze the series of processes that affect our customers (patients, family members, and staff) to determine if any steps are hindering quality. Steps and variations that do not add value to patient care processes drive quality improvement initiatives in order to:

- Eliminate any unnecessary waste of time, money, supplies, and manpower
- Provide value to the customer
- Continuously pursue excellence in patient care

Motivation

With the support of our administration, the Rehabilitation Center implemented Lean Six Sigma to tackle our problem with equipment flow, including the storage and organization of wheelchairs, bedside commodes, shower chairs, and walkers on our unit.

- Staff had difficulty locating, cleaning, and storing equipment which led to daily delays in patient care and staff frustration
- Our end goal was to establish and sustain a storage process that allowed for equipment to be quickly located, repaired, and easily maintained by all disciplines so that our staff could provide quality care in an efficient manner

Before Implementing Lean Six Sigma:

Our Main Nursing Storage Room and the Wheelchair Closet

UNC Rehabilitation Center is a 30-bed CARF-Accredited inpatient rehab facility. Our mission is to optimize the health and function of individuals with physical and cognitive disabilities through a patient-centered, interdisciplinary continuum of care. Our Rehabilitation RNs provide quality care and support while focusing on health education and promotion, including bowel and bladder retraining, managing skin health, and other medical management needs.

References:

Going Lean in Health Care. IHI Innovation Series white paper. Cambridge, MA: Institute for Healthcare Improvement; 2005.

De Koning, H., Verver, J., van den Heuvel, J., Bisgaard, S, Does, R. (2006). Lean Six Sigma in Healthcare. *Journal for Healthcare Quality,* 28, 2: 4- 11.

Strategy

An interdisciplinary team of RNs, physical therapists, occupational therapists, and project leaders were chosen to participate in events that would ultimately set a new process in place.

1st Step

- Establish groundwork and have a clean, orderly environment by holding a Red Tag Event - a Lean process of identifying items in the work area that are essential based on necessity and frequency of use
- Outdated and unneeded items were removed allowing for less clutter and fewer hazards

2nd Step

- Participate in an Express Workout to determine the current state of the equipment flow process
- Envision and map out the future state of the process

3rd Step

- Our final event to spur thoughts into actions was our Kaizen Event (meaning "change for the better" in Japanese)
- The intensive three-day event allowed the team to identify gaps in the process, brainstorm solutions, implement solutions, and measure the new process to determine if it was stable and sustainable

Outcomes

Data was collected before and after the new process was set in place and included:

- Turn-around time for a staff member to locate the appropriate equipment for the patient
- Number of defects once the piece of equipment was found
- Number of safety issues identified
- Staff satisfaction regarding the equipment process and storage

After the new process was implemented, the data confirmed that the team was able to reduce waste and improve staff satisfaction.

- Turn-around time for staff to locate equipment was reduced by more than **50%**
- Safety issues and defects were addressed and corrected allowing for overall increase in staff satisfaction

As a result of our work with implementing Lean Six Sigma, we have been able to develop a new process and maintain it for over a year. This innovative strategy for quality improvement has allowed us to be more streamlined, standardized, and organized!

After Implementing Lean Six Sigma: