

Showering Process Improvement in Ward using Lean Thinking

This case study showcases a workflow optimization project using Lean Thinking at Kwong Wai Shiu Hospital (KWSH). The project team undergone a series of structured learning workshops and onsite project implementation. Furthermore, the team was guided jointly by the coach from Lean Management Institute (LMI) and Lean Transformation Innovation Centre (LTIC). The team aimed to resolve the manpower constraints of in-patient long term care service.

Prologue: The pain point and background !

For a long time, staff nurses have raised concerns regarding having inadequate manpower for the morning shifts as it included morning-assisted bathing duties. The nursing management has been under pressure to redistribute existing nurses and recruit more new nurses in order to open up more beds for residents in view of the aging population; Human Resources (HR) department have been constantly challenged by government bodies regarding the over-allocation of nurses to the hospital. The guidelines are having 1 nurse to 2 bedridden (Category 4) residents and 1 nurse to 4 wheelchair-bound (Category 3) residents,

Act 1: Swing to action !

Finally, in several representatives from the various departments including the nurses, Nursing Management and Human Resources met in Meeting Room #1 to discuss staffing issues at the ward. The representatives from the various departments including the nurses, Nursing Management and Human Resources met in Meeting Room #1 to discuss staffing issues at the ward.

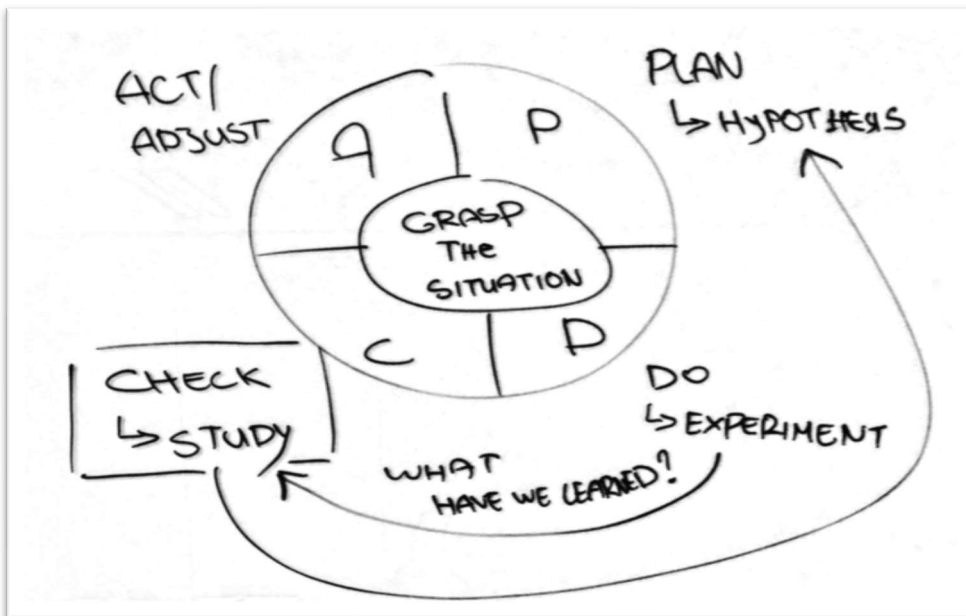
As with all team forming session, all parties were learning how to work together. After ending the formalities, the stakeholders were excited to come up with the problem statement, albeit teething differences during the storming stage (Tuckman Model) on the focus of the project. In attempt to reconcile the diverse interests, the coach facilitated the discussion and drive it toward Quality and Delivery.

“Why are we working on this project, and what do we want to achieve?”

- “The focus should be related to helping us to re-arrange our morning shift work because we are very short-handed. For morning shift, we need certain number of staff to operate properly. If we do not have nurses for the morning shift, will the nurses be rushing and therefore our promised quality care not sustainable?” - Streamline the morning ward processes to sustain quality care (Quality aspect).
- “We have complaints from our own ward nurses about being understaffed during 7.00 am – 9:00 am, every now and then”. So we have been tasked to look into workload rebalancing as a way to improve the situation at ward (Service Delivery aspect).

Reaffirming the team direction, Lean¹ project typically focused on the 4 key cornerstones SQDC (Safety, Quality, Delivery and Cost). We end the session with a classic Lean Plan-Do-Check-Act cycle to tackle this process re-engineering project. “Let’s grasp the situation!”

Act 2: Understand Current state and set the target:



Typical mornings at the ward

At 7.00 am, while most office workers are about to wake up or have breakfast, the nurses at the ward are already lining up the long-term care residents (aka residents) in each ward for bathing.

At 7:10 am, the nurses will start preparing the wheelchair-bound and bedridden residents for assisted bathing in the specific shower rooms.

some nurses are in-charge of the bedridden residents. First, they will transfer the residents from their sleeping beds to the trolley beds. One of them will then wheel the residents to the designated shower room, while another nurse stays to tidy up their sleeping beds. Those in charge of bathing will move the bedridden patient into the shower room where they have about 6-8 minutes to bathe each patient.

Nurses are in-charge of the wheelchair-bound residents who will be bathed in the remaining shower rooms. This process is slightly simpler than the former group of residents as they are able to sit up and bathe themselves, without having full reliance on the nurses.

By 9:00 am, all residents are bathed and cleaned. At this moment, the nurses are able to catch their breath. They will then clean the showering area and tidy themselves to be ready for the rest of morning routine.

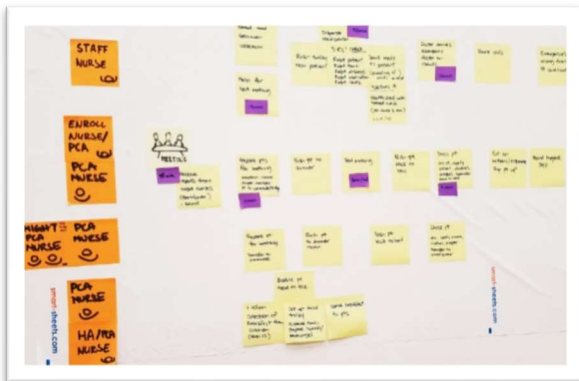
The target is to complete the bathing procedures for all warded residents latest by 9:00 am. After their morning bath, residents will have their breakfast, medication, medical check-up and other planned activities. The nurse share some of their feedback and experience on the showering process:

“Sometimes, residents on wheelchairs might not be co-operative due to their mood and personalities. This makes the work of bathing them even more challenging and it will take a longer time.”

“We also do not want the nurses to rush through the bathing process despite the 9:00 am timeline. If they rush, the residents might not be thoroughly cleaned. The residents may develop rashes on their skin as a result.”

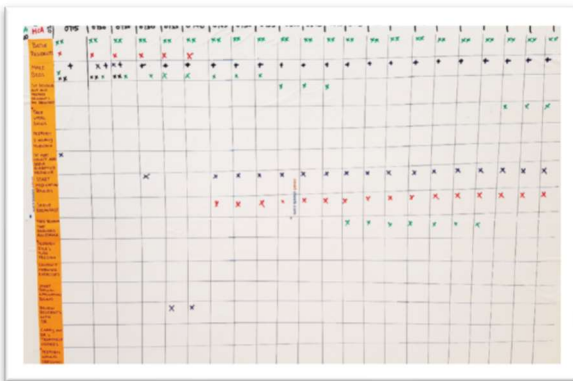
Sometimes, some nurses from the night-shift even has to stay behind to assist in the morning shifts from 7.00 am to 7.30 am.

To further understand the work, the team created a swim lane ² process map for the different nurses in the morning shift and their associated morning activity chart.



Morning Bathing Process in Swim Lane Format

This process map was further supported by an estimated activity chart for each role between 7.00 am to 9:00 am. This helped the team to visually track the workload for each job role.



Morning Shift Activity Chart

Act 3: Root cause analysis (RCA) stage

Brainstorming was done among the team by fishbone analysis of why they are not being able to complete the showering on time. 5 why technique was then used to deep dive to some of the major causes in the fish bone.

Ironically, we trace the 9am cut off time to be a result of legacy practice



The Fish Bone Diagram from A3 Sheet (partial)

Act 4: Developing Counter measure

The team brainstorm on the various counter measures to meet both the showering cut off time 9am) given the current manpower and residents.

- “If we re-design and streamlined the morning bathing procedures, could we reduce the workload of the morning shift, and therefore reduce one nurse?”
- “If we shift (rebalance) some of the morning shift work to either afternoon or night shift, do we need the same number of nurses in the morning?”
- “If we re-schedule the bathing of Category 4 residents to the afternoons, do we still need more nurses in the morning?”

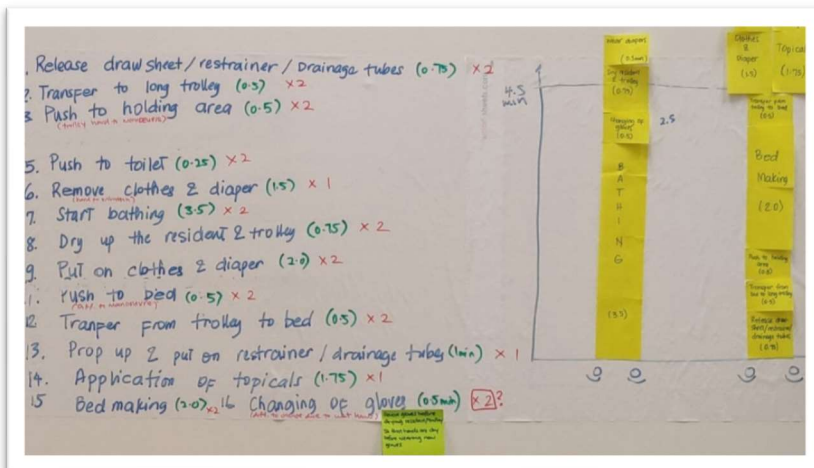
In the morning shift, the nurses , Personal Care Assistants and Healthcare Assistant are responsible for the 9 main tasks these include bathing residents, bed-making, taking vital signs, wound dressing, serving breakfast, morning exercise, Doctor Review of Residents, Carrying Doctor’s instruction and application of topical solution on residents’ skin.

Using the fishbone as a guide, the team also scrutinize every details of the process.

1) Study the bathing process to identify and eliminate the process waste. Every aspects of the tasks were examined to streamline the process.

- Earlier on, there was a suggestion by the team to shorten time needed in the bathing process. By instructing nurses in charge of bathing bedridden residents to remove gloves before drying up the residents. This is to ensure that their hands are dry for a quick changeover to a pair of new gloves. However, the actual study showed that the time saving was insignificant.
- There are two residents who prefer to do self-bathing. 2 bathrooms are allocated to wheelchair-bound residents or residents who can bathe themselves
- 1 bathroom is allocated to bedridden residents (trolley bath)

2) Standardize the bathing process to make it more efficient and effective.

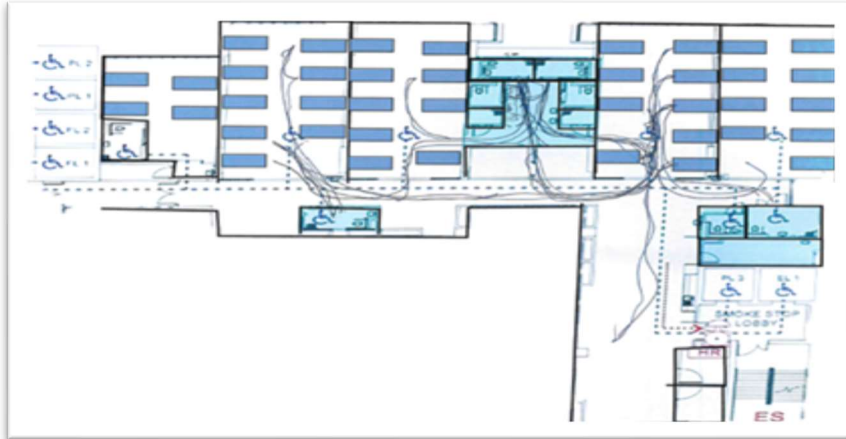


Standardized Work Chart³ for bathing Process

3) Study the other routines in the morning such as bedmaking process (fitting bedsheets, mattress sanitization) to reduce their process time further during morning crunch.

- Mattress Sanitization by Spray Cleaning versus Wipe Cleaning
- Fitted bedsheets versus Flat bedsheets

The high-spirited team was divided up into groups to record movements of the nurses and time taken for the bathing of both bedridden and wheelchair bound residents. Spaghetti chart was drawn after Gemba walk⁴ to reduce motion waste, as well as laying the foundation of workplace organization (5S) in the future.



- 4) Other future works include looking into possibility of debottlenecking by leveraging on night shift, using the typical lean manufacturing concept of quick changeover - but in a transactional service environment- to move (rebalance) some of the work to night shift. A preliminary voice of customer (VOC) was gathered. Based on the survey data gathered in September 2019, 20% residents preferred to be bathed between 5:00 AM to 7:00 AM. Another 30% Residents chose to be bathed between 7:00 AM and 8:30 AM. Looking at the data, the team felt assured to proceed with the countermeasures of having night shift nurses to bath 14 commode residents by 7:00 AM. Their confidence was further boosted by Takt Time⁵ study (not shown in this case study) to reconfirm adequate time was allocated for Night Shift Nurses to complete the bathing process.

Sequel: Follow Up

This case study illustrates how KWSH achieved the planned outcome of having 90% of residents completing the morning bathing process by 9.00 am. At the end, the project delivered a more scientific approach for allocating resources and rebalancing workload between shifts to support its current expansion drive. There is a need to develop a stronger cross-functional leadership to drive hospital wide performance improvement. This ensures that learnings from selected wards could be easily implemented for all other wards within the Hospital

Lean Glossary

1. **Lean** is about maximising customer value while minimising waste. Simply put, lean practices create more value for businesses using fewer resources. Key benefits are improved quality and safety, cost reduction, shorter lead time and continuous improvement.
2. A **Swimlane diagram** is a type of flowchart that delineates who does what in a process. Using the metaphor of lanes in a pool, a swimlane diagram provides clarity and accountability by placing process steps within the horizontal or vertical “swimlanes” of a particular employee, work group or department.
3. **Standardised Work**: The precise work sequence in which an operator performs tasks within takt time. The benefits of standardized work include documentation of the current process for all shifts, reductions in variability, easier training of new operators, reductions in injuries and strain, and a baseline for improvement activities
4. **Gemba Walk**: Literally speaking, this means “go and see” for yourself as a leader what is happening on the ground. Benefits of Gemba Walk include seeing the problems, respecting the people and provide effective coaching support.
5. **Takt time** is the rate at which a job needs to be completed in order to meet customer demand. Takt is a German word which refers to the beat of music. It can also mean cycle, rhythm or repetition time. Sometimes it refers to the baton of an orchestra leader. Benefits of Takt Time include process stability and balancing of tasks.

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