Standard Work & Workload Balancing

Erika Sundrud, M.A.
Principal, Quality, Safety, and Performance Improvement
Master Black Belt in Lean Six Sigma

Exercise
How Artisan Is Your Organization?

If you suddenly had to be gone from work, would a co-worker be able to continue your work?
Would it look the same and be of the same quality?

What would a customer think if your absence from work resulted in a different product or service?

What would a customer think if your absence from work resulted in a lower quality product or service?

Some Ways a Lack of Standard Work Contributes to Waste

• Overburden employees

• Unclear work for employees – rework, delays

• Unbalanced workload – create delays, artificial bottlenecks, resentment
Objectives

- What is Standardized Work and why should you use Standard Work
- How to Create Standard Work
- What are Standard Work tools you can use
- What is Workload Balancing

Standard Work

Standardized work is the most efficient way to do the job that maximizes safety, quality, cost, delivery, and customer satisfaction

Today’s standardization, instead of being a barricade against improvement, is the necessary foundation on which tomorrow’s improvement will be based.

If you think of “standardization” as the best that you know today, but which is to be improved tomorrow - you get somewhere. But if you think of standards as confining, then progress stops.”

Henry Ford, 1926
Today & Tomorrow
Characteristics of Standard Work

- Clear and visible documentation of the current best process
- Has safety and quality built in
- Work is done consistently, guided by the documentation
- Allows all employees to see and understand the process and identify when something is not following the process
- Provides base on which to build further improvement

Principles of Standard work

- Observable – Visual documentation enables employees and managers to observe and follow the process
- Controllable – Provides consistency through clear standards
- Measurable – Consistent outcomes should result in better quality, higher patient satisfaction, etc.
- Repeatable – Clear documented process allows multiple employees to perform the task in a repeatable manner
- Trainable – Standard work documentation provides a foundation for consistent training
- Improvable – Provides a foundation for continuous improvement
**Standard Work**

- Standard Work consists of:
  - **Takt Time** – the rate of customer demand
  - **Work Sequence** – the order of actions that a worker must perform within a given cycle time
  - **Standard Work-In-Process (SWIP)** – minimum inventory required at the end of shift so there is no lost time at start of shift (shift change)

---

**How to Create Standard Work**

1. **Document the current condition**
   a) Observe the Process
   b) Review and Standardize the Work Sequence
   c) Conduct time observation to determine the best repeatable elapsed time per cycle
   d) Observe and identify non-value added time and opportunities to eliminate waste
How to Create Standard Work

2. Create the Standard Process
   a) Determine Takt time
   b) Determine best repeatable elapsed time per cycle (from time observations)
   c) Identify safety equipment (PPE) required for process
   d) Document process walk time, manual time, flow of staff, identification of SWIP, quality checks and placement of safety equipment

How to Create Standard Work

3. Document the Standard Process and post in work area
How to Create Standard Work

4. Train staff on Standard Process (including cross training)
   a) Track training and audits of staff to Standard Process

Magnolia Video on Standard Work
Exercise

Examples of Standard Work Tools - Checklist

• A checklist is a type of informational job aid used to reduce failure by compensating for potential limits of human memory and attention. It helps to ensure consistency and completeness in carrying out a task. - Wikipedia
## Surgical Safety Checklist

### Before induction of anesthesia
- **(Critical, must review and understand)**
  - Has the patient confirmed his/her identity, site, procedure, and consent?  
    - **Yes**
  - Is the site marked?  
    - **Yes**  
    - **Not applicable**
  - In the anesthesia machine and medication checklist complete?  
    - **Yes**
  - In the pulse oximeter on the patient and functioning?  
    - **Yes**
  - Does the patient have a known allergy?  
    - **No**
  - **Yes**  
  - Difficult airway or aspiration risk?  
    - **No**
  - **Yes**, intubation equipment available
  - Risk of significant blood loss (limited by intervention)?  
    - **No**
  - **Yes**, and two simultaneous access and back-up planned

### Before skin incision
- **(Critical, must review and understand)**
  - Confirm all team members have introduced themselves by name and role.
  - Confirm the patient’s name, procedure, and where this incision will be made.
  - Has antibiotic prophylaxis been given within the last 60 minutes?  
    - **Yes**
    - **Not applicable**

### Before patient leaves operating room
- **(Critical, must review and understand)**
  - Nurse/Volunteer Conferences:  
    - The name of the procedure
    - Completion of instrument, sponge and needle count
    - Spectrum labeling (read spectrum labels aloud, including patient name)
    - Whether there are any equipment problems to be addressed
  - To Surgeon, Anesthetist and Nurse:  
    - What are the key concerns for recovery and management of this patient?

---

## Examples of Standard Work Tools – Job Aids

### SBAR COMMUNICATION TECHNIQUE FOR PATIENTS & ADVOCATES

**Situation:** I am (name), a nurse on ward X. I am calling about child Y. I am calling because I am concerned that... (e.g. BP is low/hypotensive, pulse is XXX, temperature is XX, Early Warning Score is XXX)

**Background:** Child Y was admitted on (date) with (e.g. respiratory infection). They have had (e.g. operation/procedure/investigation). Child Y’s condition has changed in the last (XX) mins. The child’s normal condition is... (e.g. alert/confused, pain free)

**Assessment:** I think the problem is (e.g. child is in pain, not able to breath or sleep), and I have... (e.g. given O2, analgesia, stopped the infusion) OR I am not sure what the problem is but child X is deteriorating OR I don’t know what’s wrong but I am really worried

**Recommendation:** I need you to... (e.g. come to see the child in the next (XX) mins) AND Is there anything I need to do in the meantime? (e.g. stop the fluid, give the child X...)}
Examples of Standard Work Tools – Daily Huddles

- Huddles – action of a team gathering together to strategize, share information, motivate or celebrate

Exercise
Workload Balancing: Flow

Workload Balancing / Leveling: Flow

- Workload balancing – balancing work across staff or departments
- Workload balancing accomplishes:
  - Evenly distribute work units
  - Obtain accurate cycle times for each process
  - Define the order that process steps are completed
  - Define the number of staff required for a given demand
  - Assist in creating the future state map
  - Improve productivity
**Time Definitions**

**Takt Time**
- The amount of time in which one part (service) must be produced to meet customer demand
- Available daily production time = Time
  Total daily quantity required
- 420 mins (7 hours) = 4 min takt time
  105 units (demand)

**Cycle Time**
- The amount of time it takes to complete a process
- Determine # of workers required for a task
- # of Workers = \( \sum \text{Cycle Times} \) / Takt Time

**Lead Time**
- The time it takes one unit or job to move all the way through a process or value stream, from start to finish
- Cycle Time plus time in queue

---

**Definition Visuals**

1. **Takt Time**: 10 minutes/patient, because six (6) patients arrive each hour

2. **Cycle Time**

3. **Wait/Inventory**

4. **Bottleneck or Capacity Constraint**

5. **Throughput Time**: 30 minutes: 2 + 20 + 8 (does not count wait)

6. **Lead Time**: wait + 2 + wait + 20 + wait + 8 (factors in the wait)
Matching Capacity to Demand

1. *Takt Time*: 10 minutes/patient because six (6) patients arrive each hour

### Workstation

- **Station 1**: 2 min/patient
- **Station 2**: 10 min/patient
- **Station 3**: 8 min/patient

---

Workload Balance: What Can We Do?

- Expect WIP here
- Expect Overtime or add FTE
- Expect idle time here

---

*TAKT Time*
**Workload Balance**

"Pace Process Flow to the Customer Demand"

![](image)

**What about the Flow of Problem Solving?**

- Possible current state:
  - Problems, issues, and opportunities are continuously identified throughout all areas of the hospital daily
  - Departments and committees really only have time to discuss these opportunities briefly once a week
  - Committees meet monthly to direct "project teams"

![](image)
Example: SDS - Batch

- Dr. A. has morning block schedule and brings in his five patients at 8 am.
- Dr. B has the afternoon block and brings in her five patients at Noon.
- Assumption: Prep 30 mins, OR time 30 mins, recovery 1 hr

Example: SDS – Single Piece Flow

- Bring in one (1) patient every 30 minutes until completed.
- Assumption: Prep 30 mins, OR time 30 mins, recovery 1 hr.
**SDS Batch vs. Single Piece Flow**

**Batch**
- Staffing
  - 5 staffed Pre-op beds
    - 8a-2:30p
    - 1.5 hours w/ no patients
  - 1 OR staffed
    - 8:30a -3p
    - 1.5 hours w/ no patients
  - 3 Recovery beds staffed
    - 9a-4p
    - 1 hour w/ no patients
- Total time to complete 10 surgeries: 8 hours
- Patient LOS: Varied 2 hours – 4 hours

**Single Piece Flow**
- Staffing
  - 1 staffed Pre-op bed
    - 8a-1p
    - 0 hours w/ no patients
  - 1 OR staffed
    - 8:30a -1:30p
    - 0 hours w/ no patients
  - 3 Recovery beds staffed
    - 9a-2:30p
    - 0 hours w/ no patients
- Total time to complete 10 surgeries: 6.5 hours
- Patient LOS: 2 hours

---

**Of Course, Processes Are Not Simple or Fixed**

- How do you account for demand variability?
  - Responsive processes
  - Workforce flexibility
  - Organizational agility
- How can we impact demand?
  - “Right” amount of patient inventory
  - Other proactive measures
Summary of Objectives

- Standardized work is the most efficient way to do the job that maximizes safety, quality, cost, delivery and customer satisfaction.
- There are several Standard work tools you can use.
- Workload Balancing can help maximize utilization of resources.

Questions
The Quorum Difference

The *Quorum Difference* is the extraordinary combination of consulting guidance and operations experience that enables client healthcare organizations to achieve a sustainable future.

Thank you

Intended for internal guidance only, and not as recommendations for specific situations. Readers should consult a qualified attorney for specific legal guidance.