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LEARNING OBJECTIVES

1. Describe what a process improvement plan is and how it can successfully be implemented in SPD.
2. Discuss the Define, Measure, Analyze, Improve and Control (DMAIC) project completed in an SPD.
3. Describe an actual process improvement project.

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SELF-STUDY SERIES

CSSD/SPD process improvement projects

Planning facilitates successful implementation

by Sharon Greene-Golden, BA, CRCST, CER

As Sterile Processing & Distribution (SPD) departments all over the world evolve as one of the most key areas of hospitals and surgery centers, how we manage our data and true facts of the many processes performed have become paramount. We can no longer give random information and numbers to the infection control professionals; we must have data to quantify our reports. It has become important to successfully show improvement and that can be achieved through the implementation of process improvement plans.

Effective process improvement plans focus on the needs of the department while considering the attributes of a process and how the end-user will be able to value that information. A process improvement plan can identify the attributes of low-or-no-value processes and remove those, thus enhancing the data derived from the plan. A process improvement plan can eliminate

wasted efforts, improve efficiency and quality, help meet regulatory compliance requirements and minimize process completion time. Improvement plans allow the SPD department to work on ways to better maneuver their resources and time management. Striving for improvement involves some type of measurement to identify whether your efforts will achieve specific target outcomes. There are many areas and processes in the SPD department that give way to being targets for improvements. Process improvement plans can allow you to have more accountability and data for the work being provided in the department as an ongoing process. In the SPD department, you can measure with graphs the immediate use steam sterilization, tray errors, cart picking errors, tray preparation time, instrument loss, cleaning of equipment parameters, and this list can go on.



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To have an effective and successful process improvement plan you must have team involvement and buy-in as to what the outcomes should be as well as your end goal for the data retrieved. As the team realizes that the information gathered can only enhance their work process, they will be happier with the collection of data and the outcomes of their improvement. Once you start on the improvement train, it is essential you continue to check all data and maintain those that meet the goal and strive to make the goal of those that were not successful. A solid improvement plan will work when the initial data period is completed. A well-oiled improvement plan can also aid in the engagement of your team members as well as gleaning great ideas of better ways to perform a task by those team members. It is important to remember that using the actual ideas of the team members working on the front lines gives you, the leader, efforts of people who are attuned to how to improve the process, as “they are actually” doing the work daily. In the end, your implementation process requires that you complete their improvement plan. The plan chosen should be one that actual data can be retrieved from work that is presently being done or has been completed.

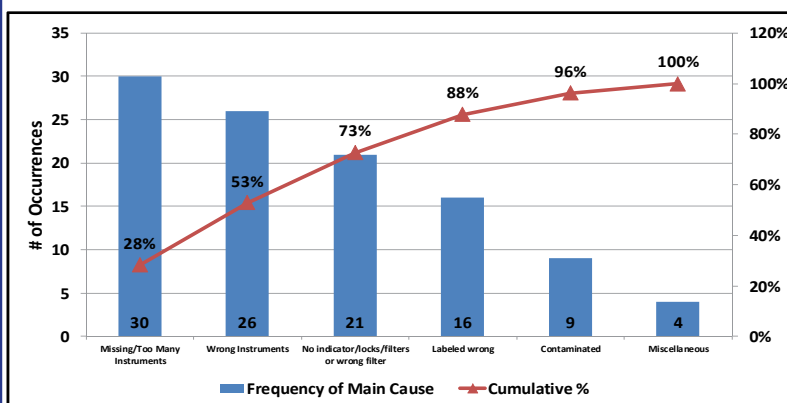
Here at my system, we chose to use the Define, Measure, Analyze, Improve, Control (DMAIC) process to help in our efforts to improve our quality of work. DMAIC is the acronym indicating Six-Sigma business performance methodology that many businesses use to improve their business practice. This effort to produce improvement plans requires five steps, including:

1. First you define and agree on the project and its parameters, which include any financial impact.
2. Next you must measure, which includes the gathering of data that is pertinent, your target, impact and the process map. Your team needs to visually map out the existing steps of the area for improvement.
3. The analyze phase allows you to reveal the root cause (WHY) of the ineffectiveness while seeing where implementation of change can occur. The main objective in the DMAIC is to improve a process that is inefficient and make the needed changes.
4. Once you see the process as it is, then the team is better able to find the areas for improvement. I do strongly recommend letting the team do the mapping, as they know where the holes are as the experts.

ANALYZE: SINGLE CASE BORE

SINGLE CASE BORE	
Reasons or Factors Contributing to Occurrence	Occurrence
	Total
1) No indicator/locks/filters or wrong filter	21
2) Wrong instrument	26
3) Contaminated	9
4) Labeled wrong	16
5) Missing or too many instruments	30
6) Miscellaneous	4

ANALYZE: PARETO ANALYSIS



ANALYZE: GETTING TO THE ROOT CAUSE

Problem Statements (top 80% taken from Pareto Chart)	Problem 1: Missing or too many instruments	Problem 2: Wrong instrument	Problem 3: No indicator/locks/filters or wrong filter			
Why?	Tray does not contain proper number of each instrument needed for surgery	Tray does not contain proper instruments needed for surgery	No checklist/reminder to include these items in tray			
Why?	Tech did not assemble tray accurately	Tech did not assemble tray accurately	Checklist is not part of the computer-generated tracking system checklist			
Why?	Tech not utilizing checklist correctly	Tech not utilizing checklist correctly				
Mark (X) to Indicate if Standard Failed People OR People Failed Standard						
	Standard Failed	People Failed	Standard Failed	People Failed	Standard Failed	People Failed
		X		X	X	



- Determine the Factors Contributing to your Problem
- Use Tools to Get to the Root Cause

Slides courtesy: Adventis HealthCare

5. Last you take the data evidence with the new changes for efficient improvement develop metrics and monitor while documenting the success.

I will now walk you through an actual process improvement plan that we are presently working on at this hospital. The Central Sterile Processing Team decided to quantify our accuracy in the processing of instrument trays for patients in the operating room (OR). We needed to know how well our team did in providing accurate instrument trays for surgery. The need for this information was important to the overall care of the patient and our role in case delays, which in some cases can contribute to extra anesthesia during surgery and our potential to impact surgical site infections. The key result areas in the alignment tree for this project were quality and safety.

Our goal was to obtain the target of 100% tray accuracy with our baseline percentage being 88%. The research with the single case bore identified that the main reasons for tray inaccuracy were missing or too many instruments placed in the tray. These root causes were confirmed with a Pareto Analysis. A Pareto Analysis is a method of analyzing the most common contributing causes for an event.

Typically, a chart is created to visualize and bucket your data to identify the main root causes of the specific event. Each area was defined with a specific chart detailing the information needed to improve the daily process. The Analyze chart shows the single case bore, which details all the reasons given for tray inaccuracy. Then we took that information and placed it on the chart defining the Pareto Analysis, which shows in real time the frequency of the main cause of tray inaccuracy, which was for our group the placing of too many instruments not requested on the recipe or not giving them what was required. Next, we moved on to finding out what the root cause was for these tray inaccuracies, which allows us

to determine the contributing factors. All these steps found in the graphs pictured show the actual work that is needed to determine the answer steps that will be taken to improve the tray accuracy in this hospital.

Here at this institution, each month the team would open 20 to 30 trays from the shelf using our audit form to evaluate the neatness, presence of an indicator, order of instrumentation according to the checklist and actual accuracy. Our team members in the OR would send a tray checklist back that had noted inaccurate counts for the tray. All the inaccurate tray information would be noted for our accuracy percentage.

This improvement process project was followed for over six months to obtain good, solid data. We then proceeded to find the root cause of trays not being assembled with the correct number of instruments and or indicators. The root cause graph, which answers the question of "why", showed that we had people failure in two areas with a standard failure in one. The root cause is noted in the list of problems numbered from one to three. We proceeded to correct the people failure with education and training making sure our team used the checklist correctly, as this was the root cause of trays not being assembled correctly. Our standard failure was due in part to the tracking system not being complete, so we had to obtain an upgrade to our tracking system, as this contributed as part of the root cause in the standard failure. With education, mentoring and training the percentage numbers began to improve from 88% to 98% for five months in a row. Our team members were able to see the errors in real time and focused on the correction needed to elevate tray inaccuracies.

Our process improvement project allowed this team to increase tray accuracy by 10% while decreasing anesthesia time due to search for missing instruments.

We decreased the need for immediate use steam sterilization (IUSS). We have a commitment to best practice and will continue to challenge our team to aim for the 100% target. We are committed to world-class performance for our team and ultimately our patients.

In the quest to implement an improvement plan you must have the involvement of your team, as they will be the stakeholders in the data collection and map processing. The plan can take a few weeks or even a year to effectively determine the success of your plan. In the end, you and your team must determine what was learned what could still be improved and if the DMAIC enhanced the process. You are striving to do better in a work process while showing how effective the team has worked to improve.

SPD departments all over the world can benefit from having factual data available that shows how the processes in the department have become more efficient. It does not take a lot of meetings just plain elbow grease to get in the field and make a process work more effectively. Improvement plan audits will raise the standards and quality in the SPD department.

The process plan implemented in the SPD detailed our exceptional results and proved that the trays were able to be processed from the decontamination room to the storage shelf in eight hours, an improvement of 6.25 hours. It is a team sport and yes, you do need the buy-in of all the stakeholders. Once your team sees their progress and how well it details the work they do daily, you have believers for life. Implementing improvement plans using the DMAIC model, or any other model, will help you be successful in showing actual data to back up all your hard work. **HPN**

References

1. ANS/AAMI ST79:2017 Comprehensive guide to steam sterilization and sterility assurance in health care facilities.
2. "Defining Value and the 7Wastes" Kaizen Training. Kaizen Training, 2014. Web. 15 Sept. 2013. <http://www.kaizen-training.com/tools.techniques/defining-value-and-the-7-wastes>

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- Current evidence: Monitoring vaporized hydrogen peroxide sterilization processes using chemical indicators
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- Breaking the chain of infection
- Steam requirements for sterile processing
- Scopes require higher level of disinfection
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- Device reprocessing in the dental setting

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CSSD/SPD process improvement projects

Planning facilitates successful implementation

Circle the one correct answer:

1. Effective process improvement plans only require the acceptance of the manager to be successful.
 - A. True
 - B. False
2. There is no value for Sterile Processing & Distribution (SPD) departments to do process improvement plans.
 - A. True
 - B. False
3. Improvement plans can be effectively completed with a week's worth of data.
 - A. True
 - B. False
4. An improvement plan requires a root cause that needs to be changed to make processes better in the department.
 - A. True
 - B. False
5. An improvement plan allows you to showcase with data how you have improved a process.
 - A. True
 - B. False
6. Quality of care benefits for your patients can be obtained through the implementation of process improvements.
 - A. True
 - B. False
7. The only improvement plans allowed for SPD teams involve cancelled loads or positive biological tests?
 - A. True
 - B. False
8. Process improvement plans can effectively help a department eliminate wasteful actions in the daily work practices.
 - A. True
 - B. False
9. One tool used in a process improvement plan is the DMAIC methodology, Define, Analyze, Monitor, Improve and Control.
 - A. True
 - B. False
10. SPD departments need real-time data to quantify information shared in reports to various teams for successful improvement plans.
 - A. True
 - B. False

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