

Let It Shine! 5S + Safety: A Biopsy Training Equipment Quality Improvement Example

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Before a trainee performs a biopsy on a patient, they must demonstrate competency using phantom simulation, which builds their confidence to perform the procedure on a patient.

Problem: Biopsy materials used for training were spread over several offices and located on the floor, on top of cabinets, on top of desks, and under desks.

Solution: As part of a process improvement project, a 5S of the space was performed, allowing for an inventory of biopsy probes, space organization, and an efficient and safe work environment.

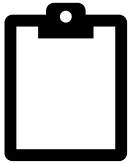
Introduction: What is 5S?

5S is a Lean management methodology focused on workplace organization and efficiency.



整理

Sort: Identify and eliminate unnecessary items, keeping only what is needed.



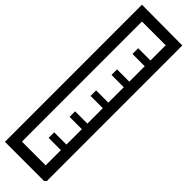
整頓

Set in Order: Organize and arrange items for easy access and retrieval.



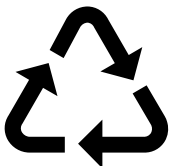
清掃

Shine: Ensure cleanliness and maintenance to create a safe and welcoming environment.



清潔

Standardize: Establish consistent processes and procedures.



躰

Sustain: Develop a plan to maintain the improvements and make 5S part of the organizational culture.

The 6th S – Safety: A Critical Component of 5S

Messiness and clutter in the workplace not only result in mistakes but also pose safety hazards.

Hence, **the 6th S**, Safety, holds great significance in the 5S methodology, focusing on identifying and eliminating potential risks.

Through proper decluttering and organization of sharps, the 5S project enhances efficiency and organization and fosters a culture prioritizing safety and well-being for staff and trainees.

A clean and orderly workspace enhances focus and reduces distractions, ultimately contributing to more positive training outcomes.

The completion of all 6S' fostered an environment where trainees could safely gather the required equipment to learn how to perform biopsies.

Causes of Waste

In the quest for process improvement, it is essential to identify and address the causes of waste within our biopsy training program. Understanding these factors allows us to streamline our operations and maximize efficiency. The following are common sources of waste:

D

- **Defects:** Identifying and rectifying errors and mistakes in the training process to minimize rework and improve overall accuracy.

O

- **Overproduction:** Avoiding unnecessary, unused training materials and resources, preventing wasteful expenditure.

W

- **Waiting:** Reducing idle time for trainees and instructors, ensuring a smooth training process flow.

N

- **Non-utilized talent:** Leveraging the expertise of our team to its fullest potential, fostering a culture of continuous learning and improvement.

T

- **Transportation:** Minimizing unnecessary movements of materials, tools, or trainees to optimize time and energy.

I

- **Inventory:** Keeping an optimal level of necessary training materials to prevent excess stock and unnecessary storage.

M

- **Motion:** Eliminating unnecessary physical movements during training, promoting ergonomics and efficiency.

E

- **Extra process:** Identifying and eliminating non-value-added steps in the training process to optimize time and resources.

Before 5S + Safety Implementation



Problem / Opportunity:

Biopsy training material for trainees is disorganized and spans multiple offices. Commercial phantoms and institution-created phantoms are not easily accessible. Biopsy probes and localization devices pose a sharp risk and are scattered on several offices' counters, shelves, and desktops.

Methods



Preparation and Analysis

- Identify stakeholders and communicate the 5S project.
- Conduct a thorough analysis of existing practices to identify inefficiencies and safety risks.

SORT

- Discard unnecessary items and retain proper quantities of biopsy probes for training.
- Eliminate clutter to create an organized workspace.

SET IN ORDER

- Consolidate essential items into one accessible location, ensuring easy access.
- Utilize visual labeling with labels/colors to improve item identification.
- Arrange items based on frequency of use and group similar items together for efficiency.

SHINE

- Implement regular cleaning schedules to maintain a clean and comfortable environment.
- Emphasize mental health by promoting a workspace that feels new and welcoming.

STANDARDIZE

- Establish consistent procedures and processes for ongoing maintenance.
- Communicate with technologists to prevent improper disposal of expired or unused probes.

6th S: SAFETY

- Organize sharps hazards to ensure a safe work environment.
- Prioritize safety for staff and trainees.

SUSTAIN

- Create a plan for continuous improvement and integration of 5S principles into the culture.
- Foster a sense of ownership among staff to maintain the organized system.

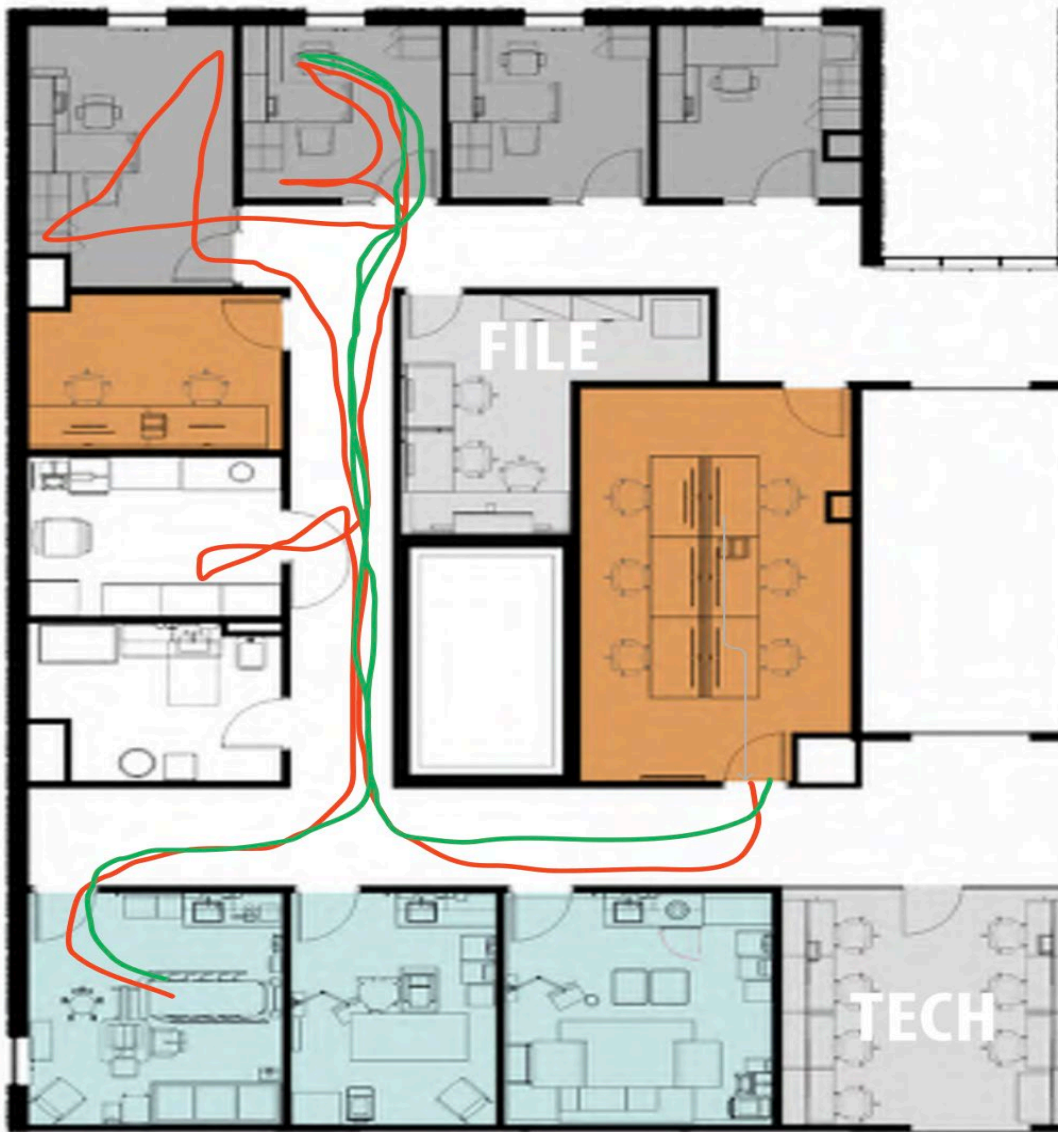
After 5S + Safety Implementation



Improvement / Benefit:

After 5S, all materials are organized in a single office under a lock and key cabinet. The radiologist's office was cleared and cleaned; the director's office is now decluttered. The cabinet is labeled so biopsy devices and types of phantoms can be easily accessible. Sharps are now minimal and in bins for safety.

Spaghetti diagram - Streamlining movement for efficiency



- A Spaghetti diagram visually represents the movement and flow of people within a space or process
- **Before 5S:** Red lines show residents' movement during biopsy training - inefficient and time-consuming paths
- **After 5S:** Green lines indicate improved movement - direct and efficient flow
- 5S eliminated movement waste by consolidating items, implementing visual labels, and optimizing accessibility
- The transformed Spaghetti diagram demonstrates the effectiveness of 5S in enhancing training efficiency

Conclusion: Importance of 5S

Maintaining a clutter-free and organized space showcases our commitment to quality training and care, building trust with patients, and enhancing our workflow

The integration of the 5S methodology emphasizes safety, standardization, and cleanliness, leading to improved outcomes, fewer errors, and instilling a strong sense of pride and ownership among our staff

Remember, 5S is an ongoing journey that requires active involvement and cooperation from all team members

By consistently embracing the 5S principles, we can create a lasting and positive impact on our daily operations, ensuring the well-being of our patients and trainees remains our top priority

References

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