Untangling the spaghetti: Improving retrieval time for CT supplies using 5S

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PROBLEM STATEMENT

The Huntsman (HCH) CT supply room is a critical resource for patient imaging. However, the room is disorganized and the time spent searching for the appropriate equipment can potentially interfere with imaging workflow and CT guided procedures, which can contribute to patient safety risks and decrease efficiency.

CURRENT STATE INVESTIGATION

- **Environment**
  - Lack of labels
  - Incorrect labels
  - Limited organizational bins/shelves

- **Methods**
  - No standardized process on restocking inventory
  - No FIFO

- **People**
  - Frequent personnel turnover

- **Machine**
  - No dedicated inventory machine
  - Labeling machine location not well known

- **Measurement**
  - Subjective staff estimation of what items need to be restocked

Disorganized supplies in HCH CT
RISK ANALYSIS

- Increased patient time in HCH CT.
- Increased procedure time in HCH CT.
- Confusion and frustration from medical providers and staff during scanning and procedures.
- Patient and provider dissatisfaction.
- Misplaced or forgotten supplies expiring and becoming waste.

SMART GOAL

- To reduce time to find supplies by 25% by December 2021 in HCH CT.
- To increase the satisfaction of CT technicians and providers with organization of HCH CT storage by December 2021.
**INTERVENTION: 5S METHODOLOGY**

<table>
<thead>
<tr>
<th><strong>SORT</strong></th>
<th>Go through supplies and remove all expired and unused items.</th>
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<tbody>
<tr>
<td><strong>SET IN ORDER</strong></td>
<td>Organize cabinets/drawers/shelves by type of supply and frequency of use. Add dedicated shelving and/or storage bins for certain items.</td>
</tr>
<tr>
<td><strong>SHINE</strong></td>
<td>Tidy up the HCH CT storage closet, control room, and scanner room: throw away trash, wipe down surfaces, etc.</td>
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<tr>
<td><strong>STANDARDIZE</strong></td>
<td>Label all cabinets/drawers so contents are known before opening them. Remove all items from unlabeled boxes so inventory is visible.</td>
</tr>
<tr>
<td><strong>SUSTAIN</strong></td>
<td>Work together with CT managers to maintain this level of organization for HCH CT.</td>
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CT ROOM

PRE

CT WORKROOM

CABINETS

Inaccurate labels.

Infrequently used supplies taking up space in easily accessible cabinets (versus in the storage room).

Immediately visible labels; supplies removed from boxes so they are easily identified.

POST

CT STORAGE CLOSET

Supplies in boxes, displayed without immediately visible labels.

No organization method for supplies on shelves.

Additional shelving/bins to maximize space. Supplies organized by type/frequency of use.

Color coded needle labels corresponding to gauge for ease of identification.

Labels added to the exterior of cabinets/drawers.
SCAVENGER HUNT RESULTS

Prior to intervention, seven participants were asked to find ten frequently used items within the CT room and storage closet and timed during their search. Seven new participants were asked to complete the same task post intervention. The scavenger hunt items are listed below:

Sterile gloves
Sterile 4x4 gauze
50ml syringe
Sterile gown
18G needle
Biopsy tray
Christmas tree adapter
Saline/H2O bottle
Mask
Three-way stopcock

Average Pre Time (h:mm:ss) 0:11:17
Average Post Time (h:mm:ss) 0:04:19
% change -61.68
p-value 0.0013

Scavenger Hunt Average Times
During the Scavenger Hunt, participants’ movements were tracked and illustrated, pre and post intervention. Individual participants’ diagrams were combined, demonstrating decreased movement post intervention.
CT technicians and providers were asked to complete a survey pre and post intervention.
POST INTERVENTION SUMMARY

- Decreased time to acquire supplies by approximately 61% (original goal was 25%).
- Decreased foot traffic in the CT room and storage closet area.
- Increased satisfaction scores among CT technicians and providers.

FUTURE DIRECTIONS

- Work with CT technicians to maintain new organization system.
- Standardize process of accepting/unloading new supplies and organizing them within the new organization system.
- Create system to improve ease of taking inventory for ordering new supplies and discarding expired supplies.
ACKNOWLEDGEMENTS

We would like to thank Michelle Simmons, Hassan Bourija, and all of the faculty, trainees, and technicians at their University of Utah for their support and participation in this project.

REFERENCES