

Optimization of Workflow and Medication Safety in Unit Dose Dispensing

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Background

- A need was identified to increase patient safety and efficiency in the inpatient unit dose area of a pharmacy within a major, acute care, tertiary, academic hospital.
- Changes were desired before the transition of pharmacy services to 24/7 and computerized provider order entry implementation.

Description

- Redesigning the workflow and workspace was thought to reduce interruptions, which in turn would decrease medication filling errors and increase patient safety.
- Reducing time to fill medication carts would increase efficiency and effectiveness.

Action

- A thorough analysis (using a LEAN quality improvement approach) of the processes, workspace and workflow was completed (Table 1, Figure 1).
- The volume of activity was analyzed to determine optimal staffing levels.
- The schedule was revised to align shifts with peak activity.
- Reducing non-essential, non-value added work was desired.
- An event was held to sort, set in order, shine, standardize and sustain (“5S”) the proposed future state (Figure 2).
- “Plan-Do-Check-Act” cycles were completed during implementation to refine processes.

Table 1: Components of a Safe Pharmacy Environment (Adapted from Reference 1)

Create Medication Safety Zones	<ul style="list-style-type: none"> • Critical areas where vital functions of medication dispensing are performed • Should have readily available information • Should be organized and standardized
Provide Adequate Lighting	<ul style="list-style-type: none"> • Improves accuracy and efficiency in medication dispensing
Minimize Interruptions & Distractions	<ul style="list-style-type: none"> • Distractions account for 45% of medication errors • Staff education and awareness is important
Consider Physical Design & Organization	<ul style="list-style-type: none"> • Poor ergonomics influence the ability to use information and perform tasks • Consider spacing, heights for countertops and use of adjustable fixtures
Reduce Sounds & Noise	<ul style="list-style-type: none"> • 50% of reviewed studies showed noise impaired performance • Quiet areas should be incorporated into pharmacy designs

Evaluation

- Direct observation of work, timing of medication cart filling, counts of medication returns, counts of adverse event reports and discussions with staff were done to assess current and future state.
- One month after implementation, the number of interruptions during medication cart filling had decreased by 43%.
- There was positive staff feedback on the space redesign.
- Fewer adverse errors were reported and a decreased amount of time was noted in filling the medication carts.
- Independent double checking of medication carts increased by 10% (this value has continued to improve since implementation).
- Ninety-five percent of medication carts were filled within the new target time.
- There was no change in the number of steps required to fill each medication cart.

Implications

- A quality improvement approach helped to identify opportunities for increased efficiency and safety within the pharmacy environment.
- Positive results were obtained after thorough analysis of workflow and workspace redesign.

Figure 1: Current State

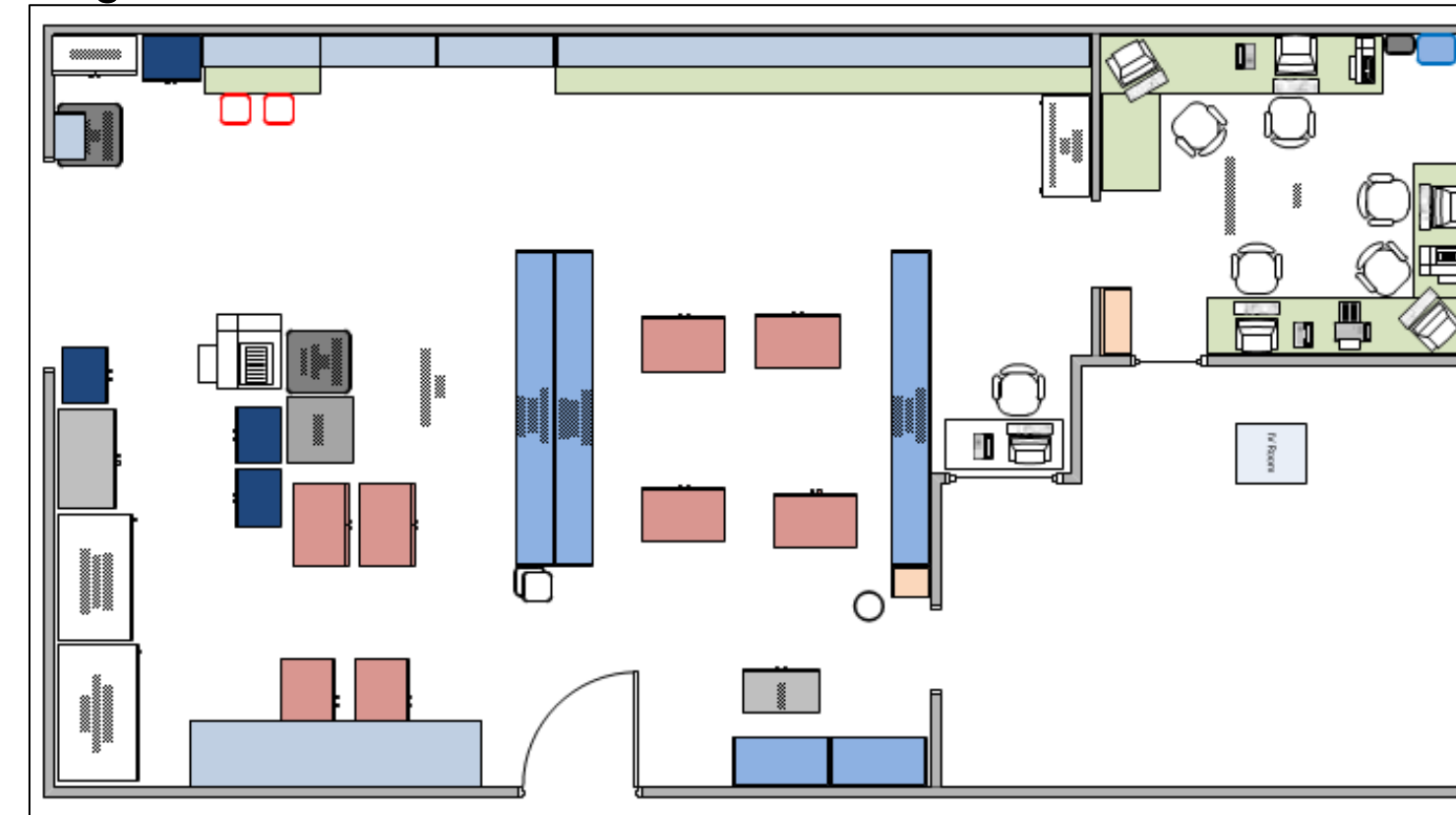


Figure 2: Future State

