

## Pharmacist Driven Automated Dispensing Cabinet Optimization

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**Practice Site:** Carilion Roanoke Memorial Hospital (CRMH) – Roanoke, VA

**Background:** Inadequate medication par level management in Automated Dispensing Cabinets (ADC) can lead to increased medication stockout percentages that may result in delays in patient care, disruption to nursing workflow, and increased pharmacy workload. Due to the national pharmacy technician shortage, CRMH has had infrequent ADC inventory review and optimization leading to increased medication stockout percentages.

**Objective:** The primary objective of this process improvement project is to optimize PAR levels in targeted units with high medication stockout percentages in an effort to decrease medication stockouts. Thereby, decreasing delays in patient care, nursing frustration, and pharmacy technician workload.

**Methods:** This is a continuous quality improvement project using retrospective data to guide prospective ADC inventory optimizations. Three Intensive Care Units (ICUs) with high ADC medication stockout percentages were identified for optimization with the following services: Cardiovascular Intensive Care (CCU), Medical Intensive Care (8MICU), and Neuro Trauma Surgery Intensive Care (9MICU). Initial ADC interventions began in early February and were finalized on March 14, 2022, which included adjustment of inventory PAR levels, removal of unused or stagnate medications that have not been dispensed in greater than 90 days if non-controlled or 180 days if controlled, standardization of ADC stock, evaluation of high dispensed medications not currently loaded in the ADC for addition to stock, and to review ADC activity data every 30 days for associated opportunities. Baseline was defined as the combined average of medication stockout percentages for the months of January, February, and March of 2022. ADC optimizations were conducted by three clinical pharmacy specialists for their respective unit and their recommendations were sent to the current PGY-2 Health-System Pharmacy Administration and Leadership resident for review, and the final adjustments were made by the pharmacy technician automation coordinator. Descriptive statistics were used to analyze study results.

**Preliminary Results:** The baseline medication stockout percentage was 2.0% for the CCU, 1.9% for 8MICU, and 1.1% for 9MICU. 30-days following optimization finalization resulted in medication stockout percentages of 2.0%, 1.6%, and 0.7% (% decrease from baseline: 0, 15.8, and 36.4) for the CCU, 8MICU, and 9MICU, respectively. Additionally, a total of 42 (CCU: 19; 8MICU: 8; 9MICU: 15) medications were identified for removal from the 3 ICUs of which had a combined total days unused of 13,946 (CCU: 5,594; 8MICU: 4,261; 9MICU: 4,091).

**Conclusion:** The pharmacist driven automated dispensing cabinet optimization successfully reduced medication stockout percentages, decreased medication waste, and increased available ADC pocket space. Additionally, this project has increased pharmacist ownership of ADC inventory on their unit of coverage and has proven to be a viable solution in lieu of having dedicated ADC personnel. The next steps for this project include conducting a monthly review of previously optimized units to address medications with  $\geq 5$  stockouts, identify other units with high medication stockout percentages for incorporation, and develop a sustainable process for ADC review and optimization.