

Impact of Increased Utilization of Automated Dispensing Systems on Workflow Efficiency and Timeliness of supportive care medications in oncology setting

Wai Tak Vince Sung, PharmD, MBA, BCOP, BCSCP

Purpose

- Automated Dispensing Systems like Pyxis are designed to securely store, manage, and dispense medications to healthcare personnel
- Traditional methods like carousel pulling can hinder efficiency, increasing workflow burdens, delay medication administration, and frequent missing medication message
- This study aims to evaluate the impact of increased utilization of ADS on workflow efficiency and timeliness of supportive care medications in oncology setting

Methods

Study design

- Retrospective Observational Study

Timeframes Analyzed

- Initial Data Set: June 2023 to May 2024 (Medications not loaded)
- Comparison Data Set: June 2024 to May 2025 (Medications post-loaded)

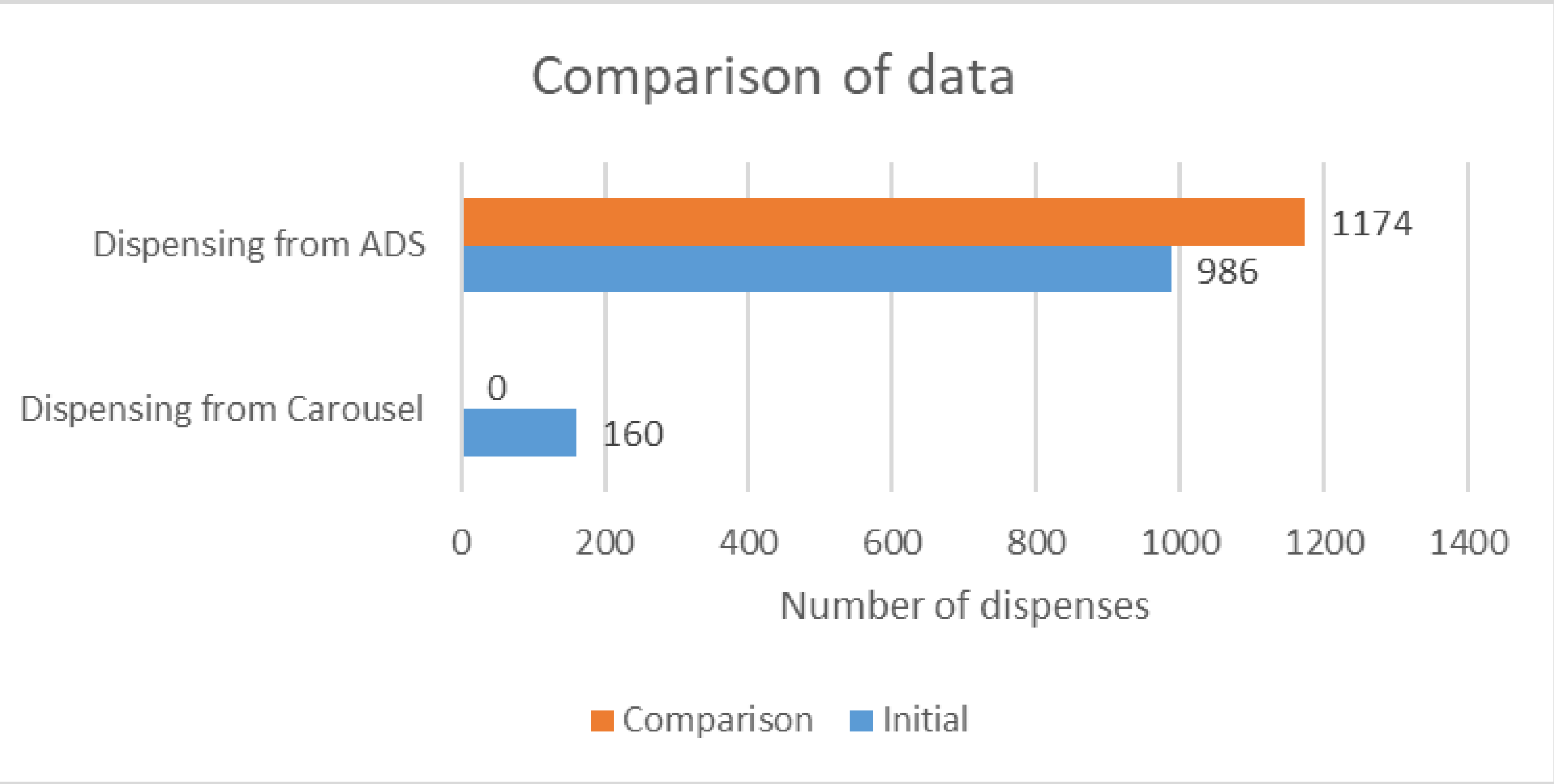
Medications Evaluated

- Magnesium Sulfate 1gm/100mL of 5% Dextrose in Water (D5W)
- Magnesium Sulfate 2gm/50mL of Sterile Water for Injection (SWFI)

Data Analysis

- Compare number of orders dispensed from carousel and from ADS
- Compare number of missing medication messages

Optimized utilization of Automated Dispensing System significantly improve workflow, enhance efficiency, and demonstrated cost saving



	Initial	Comparison
Total number of med messages	88619	78070
Average times to resolve each message (minutes)	32	24
Total time spent (minutes)	2835808	1873680
Cost associated	\$ 945,269	\$ 624,560

Results

Initial Data

- Total orders: 1146
- Dispensed from Carousel : 14% (160)
 - Dispensed from Automatic Dispensing System: 86% (986)
- Total Missing Medication Messages: 88619
- Average time spent resolving each message: 32 minutes
 - Total time spend 2845820 minutes
 - Cost of activities (using \$20/hr national average): \$948,607

Comparison Data

- Total orders: 1174
- Dispensed from Carousel : 0% (0)
 - Dispensed from Automatic Dispensing System: 100% (1174)
- Total Missing Medication Messages: 78070
- Average time spent resolving each message: 24 minutes
 - Total time spend 1877662 minutes
 - Cost of activities (using \$20/hr national average): \$625,887

Conclusion

- Increased utilization of the automated dispensing system significantly improved workflow efficiency
- The shift of dispensing from carousel to ADS resulted in a 14% workload reduction.
- There is also a cost saving of over \$300,000 associated with this reduced workload in terms of reduced med messages.