Comparison of a Centralized Versus Decentralized Pharmacy Workflow in a COVID-19 Vaccination Clinic.

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Background

- With multiple COVID-19 vaccinations being utilized by health systems across the country, it is important for vaccination clinics to have a standardized, but efficient workflow process.
- Pharmacies within health systems are encountering difficulties maintaining productivity for their inpatient services while balancing dispensing vaccines efficiently for their clinics.

Purpose

The purpose of this study was to determine if a centralized pharmacy workflow of a COVID-19 vaccination clinic results in a reduction in allocated pharmacy colleague hours.

Methods

Study Design

A single-center, prospective, time study was completed to compare the pharmacy workflow of a COVID-19 vaccination clinic in a centralized location to a decentralized location. The decentralized workflow was located within the vaccination clinic where a pharmacy technician dispensed vaccinations under the supervision of a pharmacist. The centralized workflow was in a sterile compounding environment located within the pharmacy. In both locations, a photo-based medication workflow software was used to maintain efficiency during the dispensing and verification process. Vaccine stability in syringes had been released by the manufacturer after the decentralized workflow started. Due to an increased stability in syringes, pharmacy staff were relocated to the centralized pharmacy where vaccinations could be dispensed in a larger quantity to increase productivity. Labels created by the workflow software contained a barcode used for scanning during the administration process which filled the product name, manufacturer, lot number and date of the vaccination into the electronic health record. The label was also used to label the COVID-19 Vaccination Record Card.

Primary Outcome

Average time spent by pharmacy colleagues in each distinct workflow.

Secondary Outcome

Average verification time of a pharmacist in the centralized pharmacy workflow of a COVID-19 clinic.

Vaccine Label Used During Administration Process

Pfizer-BioNTech COVID-19 Vaccine
Administer by: 01/07/2021 11:18
Discard 6 hours after dilution.

(01) 00359267100016
(17) 210107
(10) EL3249
(21) 2328

Pfizer-BioNTech COVID-19 Vaccine **Lot:** EL3249 | 01/07/2021 | St Elizabeth's Ofallon Hospital

Vaccine Label Used for COVID-19 Vaccine Record Card

Pfizer-BioNTech COVID-19 Vaccine Lot#EL3249	1/7/2021	St. Elizabeth's Hospital O'Fallon, IL

Results

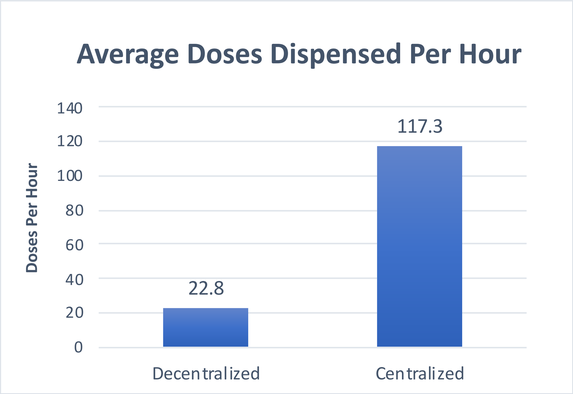

Fig. 1 Average Doses Dispensed Per Hour

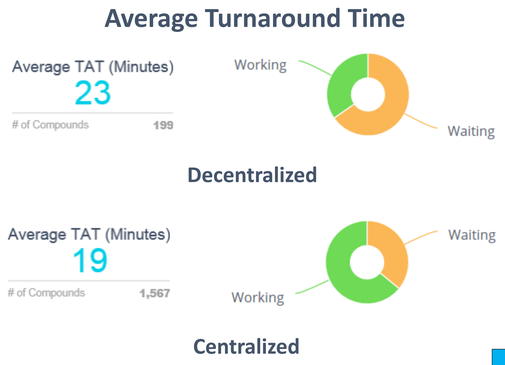

Fig. 2 Average Turnaround Time in Each Workflow

Time Comparison

	Decentralized		
	Total Time	**Productive Time**	**Non-Productive Time**
Average Technician Time Per Day	12.1 hours	3.7 hours	8.4 hours
Average Pharmacist Time Per Day	12.1 hours	0.61 hours	11.5 hours
	Centralized		
	Total Time	**Productive Time**	**Non-Productive Time**
Average Technician Time Per Day	2.5 hours	2.5 hours	0 hours
Average Pharmacist Time Per Day	0.125 hours	0.125 hours	0 hours

Table. 1 Comparison of the Average Time Spent in Each Workflow

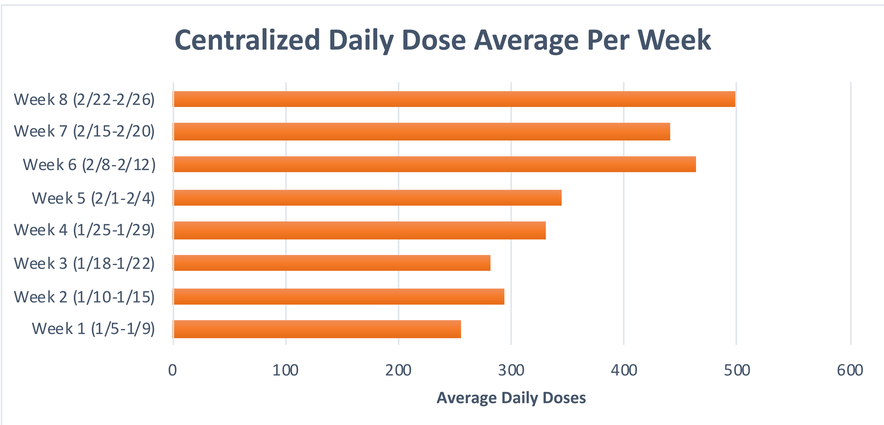

Fig. 3 Average Daily Doses per Week in the Centralized Workflow

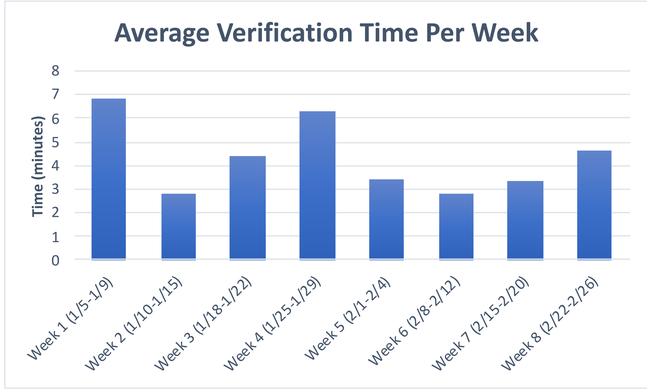

Fig. 4 Average Verification Time Per Week in the Centralized Workflow

Discussion

- When compared to a decentralized pharmacy workflow of a COVID-19 vaccination clinic, the centralized workflow resulted in both reduced technician and pharmacist time per day.
- Changes in stability of the vaccinations allowed for batching of the vaccines in larger quantities. Combining batching with the centralized workflow, the average doses dispensed per hour increased.
- By centralizing the pharmacy staff for a COVID-19 vaccination clinic, the pharmacy technicians were able to increase productivity by 80.6%.
- Centralization of both pharmacy technicians and pharmacists led to a substantial cost savings for the hospital of approximately $24,000 over a 2-month period.
- Pharmacist centralization did not affect the turnaround time of the COVID-19 vaccination clinic workflow as the average weekly verification time was consistently between 2.7 to 6.8 minutes as the average number of appointments in the clinic continued to increase. By relocating to the pharmacy, the number of pharmacists available to verify the dispensing of the vaccinations increased which led to a decreased turnaround time in the central location.

Conclusions

Centralization of both pharmacy technicians and pharmacists led to a reduction in both pharmacy technician and pharmacist time spent on the COVID-19 vaccination clinic per day. By centralizing the pharmacy staff, various pharmacy staff members were reallocated to assist in daily operations throughout the hospital.

Disclosures

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

References

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2. Grifols. 30 Apr. 2019, *Grifols Announces PharmacyKeeper Bidirectional Integration with Epic*, Cision PR Newsware, www.prnewswire.com/news-releases/grifols-announces-pharmacykeeper-bidirectional-integration-with-epic-300840593.html.