



Introduction

This pilot study aims to evaluate and compare process efficiency between a decentralised prescription review workflow (intervention), and a conventional centralised prescription filling workflow (control) at a hospital's outpatient setting.

The decentralised process involved locating pharmacists at Specialist Outpatient Clinics to review patients' medication immediately post-consultation. After pharmacist's review, medications preparation were simultaneously triggered at Pharmacy while patients made payment at the Clinic's Cashier. This allowed patients to 'pick-and-go' upon arrival at Pharmacy, thereby reducing patients' waiting time at the Pharmacy.^{1,2}

Objectives

- 1) Reduce registration and payment touch-points.
- 2) Preparation and payment of medication to be concurrent, to reduce patient's total waiting time.
- 3) Patients can 'pick-and-go' upon arrival at Pharmacy.

Methodology

During a 3-month period, workflow efficiency was measured by end-to-end prescription processing time.

Data collection slips were attached to prescriptions for time-motion data collection. Pharmacy staff noted down time stamps at start of each processing step; durations taken for each step was then calculated from start to end of each step.

Secondary process indicators tracked for intervention workflow included prescriptions ready for immediate collection on arrival at Pharmacy, and reworks due to inventory issues and bill reversals.

The intervention and control prescription filling workflow is as shown at Figure 1.

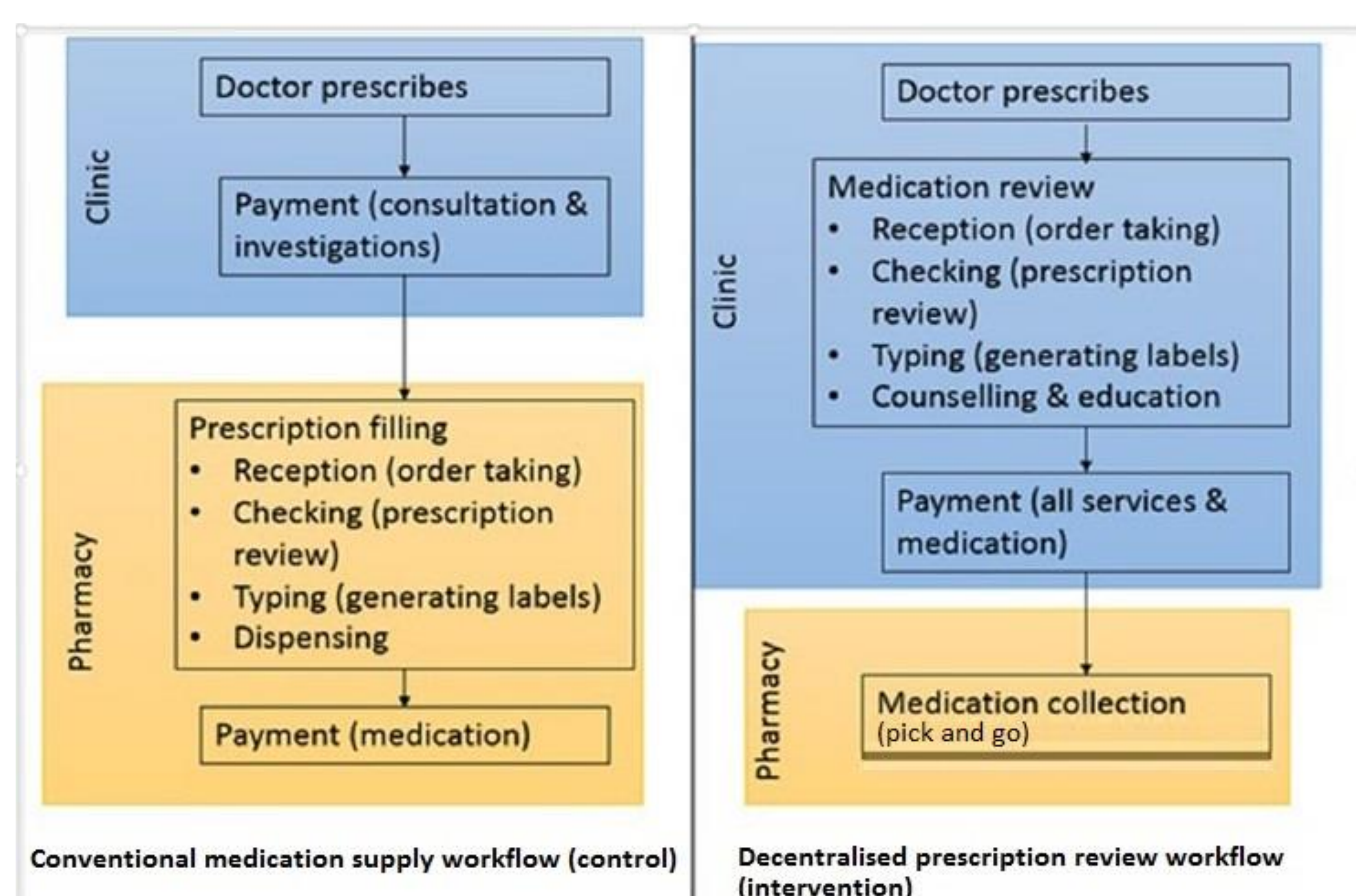


Figure 1. Conventional medication supply workflow (control) and Decentralised prescription review workflow (intervention).

Results

- Of 1,443 prescriptions tracked, 1,117 prescriptions had complete data, 326 prescriptions with incomplete data were excluded.
- As shown on Table 1, approximately 25% reduction in total prescription processing time (803.6 ± 409.0 s vs 618.6 ± 468.3 s, $p < 0.001$) was observed for intervention workflow. This could be due to one pharmacist doing, 1) registration, 2) medication reconciliation, 3) typing, and 4) counselling process at intervention workflow, instead of conventional workflow where steps were sequentially handled by 4 different staff.
- 96% of patients who went through intervention workflow were able to collect medications immediately on arrival at Pharmacy. This improved patients' perception on their duration of wait.
- 14 bill reversals were recorded for intervention workflow (i.e. 2.4% of the prescription load)
- 9 cases of inventory inaccuracies within pharmacy dispensing system were reported.

Processing task	Control timing (s)	Intervention timing (s)	p value
Reception	83.0 ± 63.3	396.4 ± 344.4	-
Checking	137.0 ± 108.3		
Typing	72.8 ± 52.6		
Packing	287.6 ± 290.8		
Dispensing	227.3 ± 265.3	222.3 ± 286.6	0.000
Total prescription processing time	803.6 ± 409.0	618.6 ± 468.3	

Table 1. Time-motion study comparing control and intervention workflows

Discussions

Benefits

- ✓ Concurrent process of packing medications while patients made their way to collect medications reduced patients' perceived duration of wait at Pharmacy.
- ✓ Timely intervention and team-based care could be delivered by clinic pharmacists when review process was brought forward, allowing earlier detection of drug-related problems before entering orders into Pharmacy systems.
- ✓ Performing transactions at Clinic also managed to reduce patient traffic and crowd at Pharmacy during peak hours.

Challenges

- Intervention workflow combined reception, typing, and checking to one pharmacist. Resulting in possible increase risk of slips and errors.
- Medication counselling could be ineffective without physical medications. This was evident when dispensing time taken for intervention workflow remained unchanged when time reduction was expected.

Conclusion

Integrated decentralized workflow may result in positive impact on patients' perceived waiting time.

The results of this study provided insights to benefits and challenges which can support modifications and implementation to realize team-based-patient-centered care that can ensure timely medication supply in outpatient settings of healthcare institutions.

References

1. Vaillancourt R. Pharmacists: the guardians of safe medication use. *Can J Hosp Pharm* 2011; 64: 5-6.
2. Väre P, Nikiphorou E, Hannonen P, et al. Delivering a one-stop, integrated, and patient-centered service for patients with rheumatic diseases. *SAGE Open Med* 2016; 4: 2050312116654404.