

Where's WALL-E: Where do robots really impact hospital pharmacy dispensaries?

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The Gold Coast University Hospital, a 750 bed, tertiary public hospital implemented a Pharmacy Robot in May 2016. The aim of this study is to review the impact a pharmacy robot as had on workload and turnaround times of medication supply.

Background: Pharmacy robots, implemented globally are new to Australia. The limited literature available does not cover Australian hospitals unique dual funding model for medication supply eg part-pack management. It is not known if the international literature translates into the Australian environment. GCUH pharmacy implemented a pharmacy robot in May 2016.

Methods:

A five day time in motion study of the GCUH Pharmacy department daily work activities

Data sources include:

- Time stamped video footage of dispensary activities
- Fit-Bit® tracking of staff movement
- Imprest supply tracking databases
- Scriptraker®
- iPharmacy dispensing software data.

Data collected in two phases:

1. Pre-implementation – May 2016
2. Post implementation – August 2017

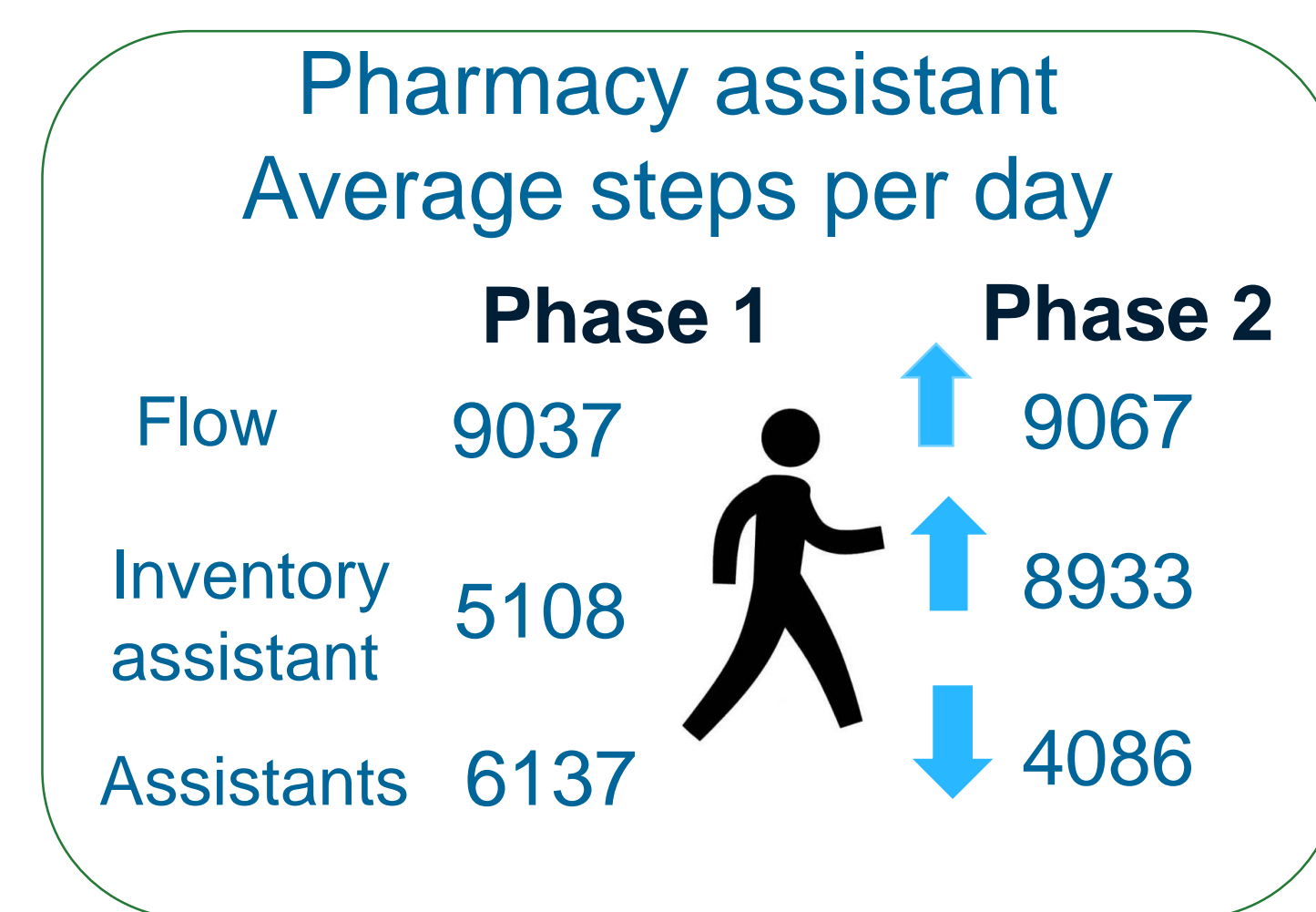
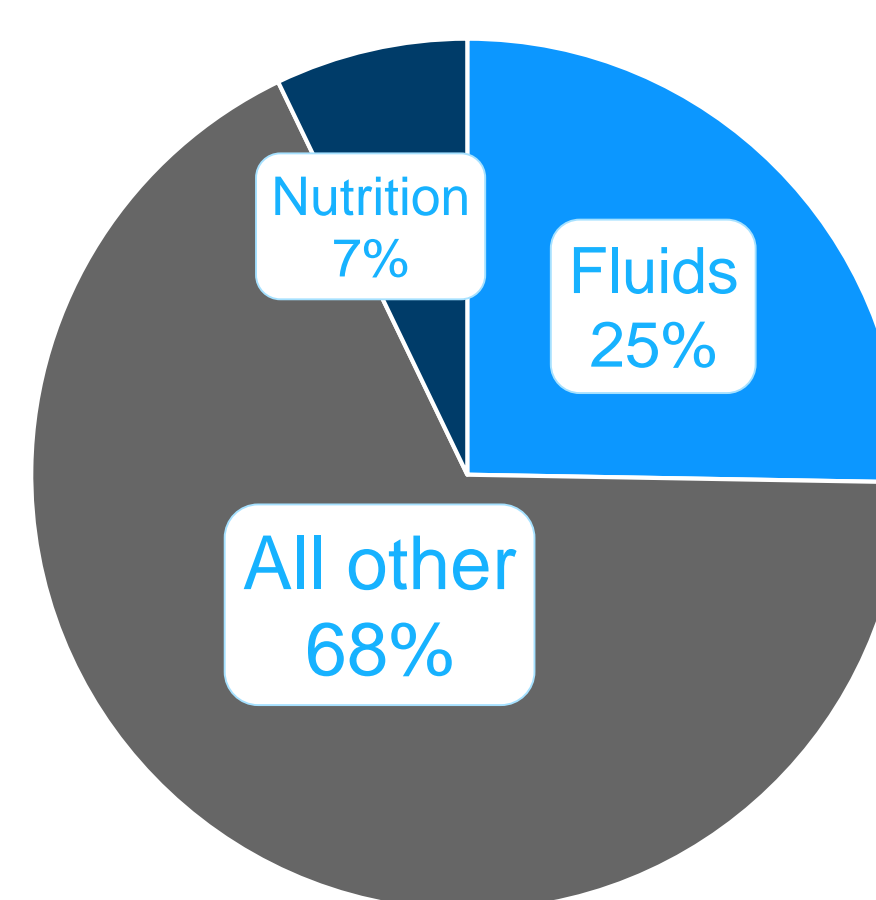
Analysis compared the results of each phase

Workflow changes

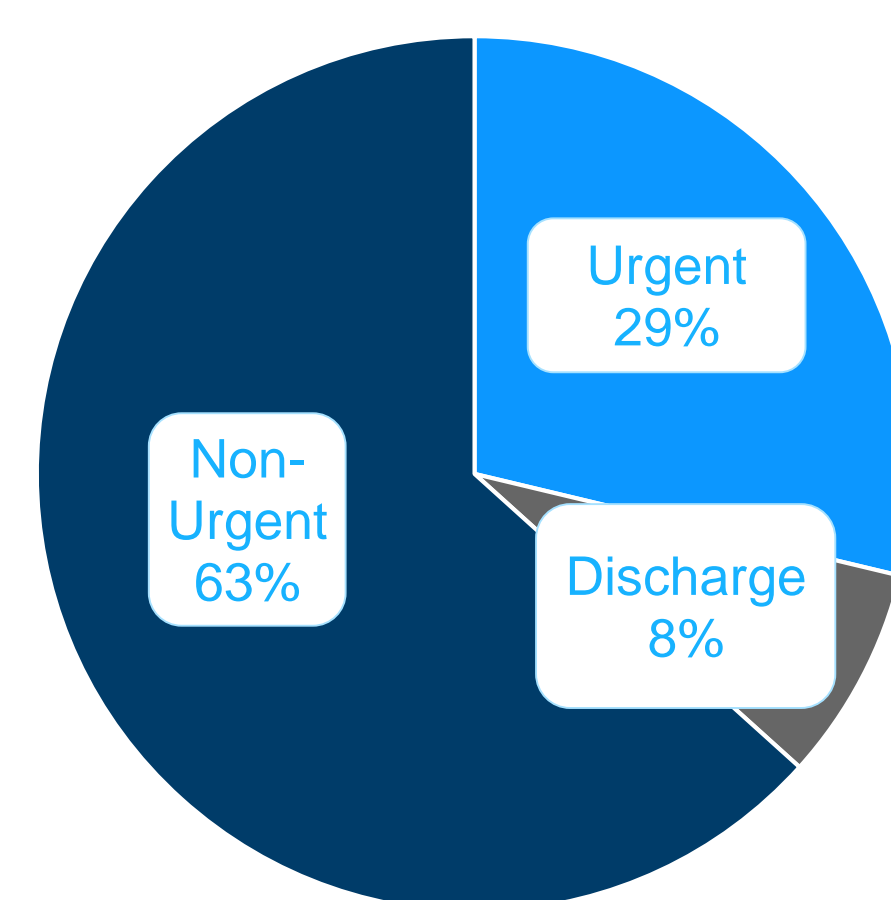
Changes to dispensary and impost ordering workflow were implemented to optimise use of the pharmacy robot which include:

- Nurse placing request for impost orders directly into iPharmacy for areas with limited Pharmacy service eg theatres
- Staggering pharmacy assistant impost ordering throughout day:
 - Ordering staggered into 3 shifts per day
 - WOW's for impost ordering assistants for direct entry into iPharmacy
 - More assistants available in dispensary in the morning from staggered impost ordering
- Use of electronic impost tracking system
- Introduce next day impost delivery

Type of Imprest orders



Dispensary work



Workload: Total number of medication request in dispensary

Type	Measure	Phase 1 (n)	Phase 2 (n)	Change
Total items in dispensary		776	863	↑ 11%
Discharges	Number of orders	68	63	↓ 7%
	Dispensing turn around time	21min 37 sec	13 min	8min 37 sec faster
Urgent	Number of orders	165	246	↑ 67%
	Turn around time to dispense	9 min 45 sec	8 min 37 sec	1 min 37 sec faster
Non urgent	Number of orders	541	554	↑ 3%
	Turn around time to dispense	7 min 38 sec	9 min 30 sec	1 min 52 min slower
Total impost orders		256	292	↑ 39%
Imprest picking	Number of orders	153	182	↑ 19%
	Turn around time to pick stock	13 min	34 min 15 sec	21 min 15 sec slower
Ad hoc/imprest top up picking	Number of orders	103	110	↑ 3%
	Turn around time to pick stock	42 min	30 min	12 min faster

•Conclusion: The pharmacy experienced a considerable increase in workload after the pharmacy robot was introduced yet staff were able to complete dispensing tasks faster with the same number of staff manning the dispensary. Imprest order requests increased in number yet the task of picking stock was surprisingly slower, however significant workflow changes to impost management had been implemented such as staggered ordering and next day delivery. Staff completing dispensing tasks are needing to leave their station less and getting through the volume of work faster.