

Time-and-motion study of imprest supply times before and after Pyxis implementation in four Emergency Departments

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Aim

- To evaluate the impact of Automated Medication Distribution Systems (AMDS), or Pyxis® machines, on the time spent on medication imprest supply in the Emergency Department.

Method

- **WHERE:** Four Emergency Departments in Queensland. Two tertiary sites (Royal Brisbane and Women's Hospital, and The Prince Charles Hospital) and two secondary sites (Redcliffe and Caboolture hospitals).
- **HOW:** Pharmacy technicians self-reported the time taken for each task during the medication imprest supply process over a 1-month period before Pyxis implementation and again three months after. The number of items supplied and any interruptions resulting in delays were also recorded.

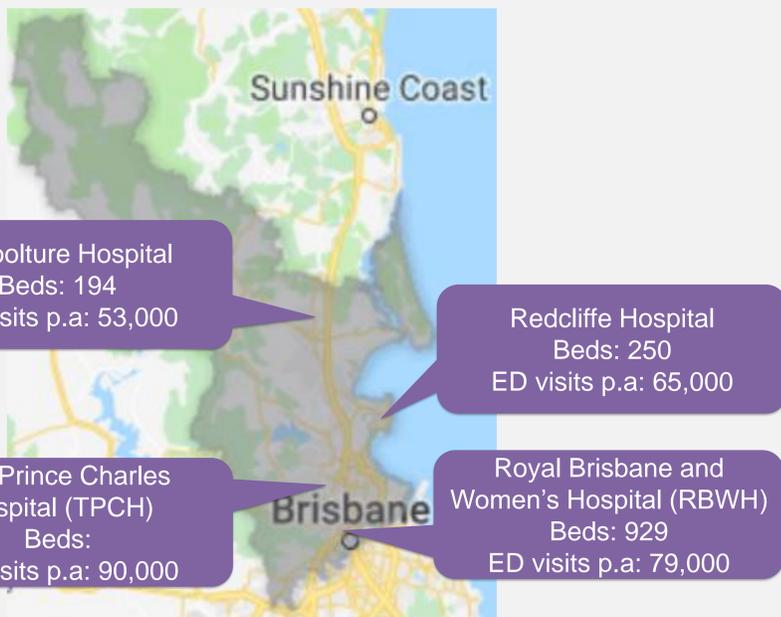


Figure 1: Metro North Hospital and Health Service district

Results

Table 1: Changes to imprest supply following Pyxis implementation

| | Redcliffe | RBWH | TPCH | Caboolture |
|---------------------------------|----------------|----------------------------|----------------|----------------|
| No. of imprest locations | 5 ↔ | 5 +2 extra | 5 ↔ | 3 +2 extra |
| No. of lines held | 687 +11% | 724 +33% | 680 ↔ | 541 +52% |
| No. of supply days | 3 days/wk ↔ | 5 days/wk +2 extra days | 5 days/wk ↔ | 2 days/wk ↔ |

Two of four hospitals showed overall time savings (Figure 2).
The number of imprest locations remained constant at both sites (Table 1).

Two other sites which showed an increase in time had two new imprest locations added with Pyxis implementation (Figure 2 & Table 1).

Lines held increased by 33% and 52% in order to improve workflow and access to medicines.

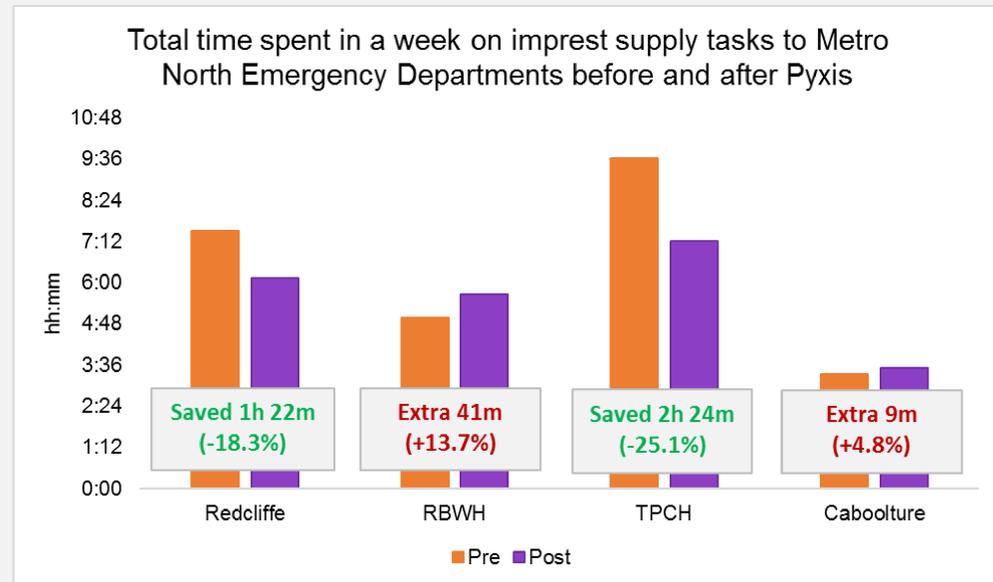


Figure 2: Changes in time per week spent on imprest supply to Metro North Emergency Departments post Pyxis implementation

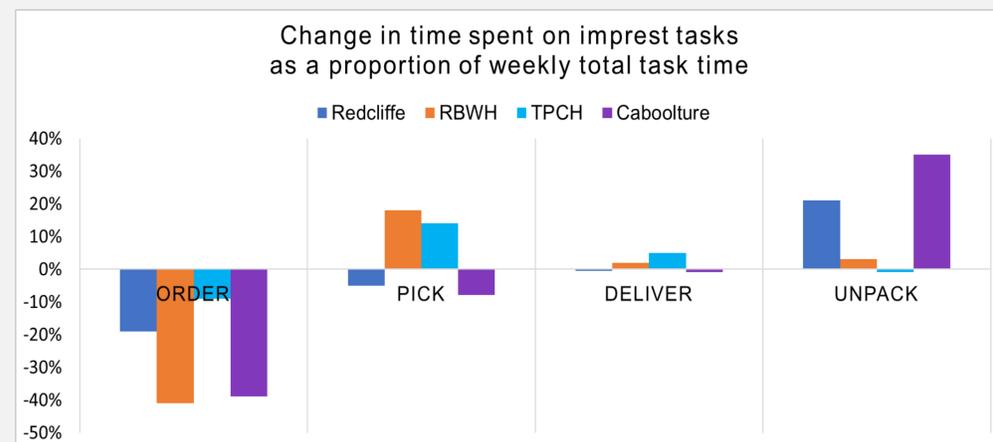


Figure 3: Changes in time spent on imprest tasks after Pyxis implementation, as a proportion of the weekly total task time

- All sites saw large reductions in the time spent counting and generating orders, with reductions of 9 – 41% of the proportion of total task time (Figure 3).
- The unpack times increased from 4 – 35%, with a decreased time of 1% seen at one site.
- The additional time spent unpacking was likely due to the requirement for barcode scanning and computer input, as well as interruptions by nurses needing to use the machine.

Conclusions

- A reduction in time spent on imprest supply may be expected post Pyxis implementation in the Emergency Department when the number of imprest locations remain the same.
- However, when the number of imprest locations and/or medicine lines held is significantly increased, the time saving benefits may not be realised.
- To realise the benefit of imprest time savings, careful consideration of imprest storage requirements is needed to ensure that the number of days the Pyxis requires restocking is minimised, without compromising timely access to medications in the Emergency Department.



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