

# Expanding Horizons: Embracing the Space to Grow an Emergency Medicine Pharmacy team

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## Introduction

Several Australian studies demonstrate that approximately one-fifth of ED re-admissions are medication-related and a high proportion of these are considered preventable<sup>1,2</sup>. Furthermore, when patients are admitted to the ward from the ED, medications are often prescribed by a medical officer before pharmacist review. The likelihood of medication errors is increased in this reactive model of care and can lead to significant delay in identification of medication-related issues. The consequences of delayed medication reconciliation include continuation of errors made on admission, unnecessary use of staff time to make amendments on charting errors, patient harm and delayed patient flow.

Our hospital's ward pharmacists were facing challenges in seeing all patients in a timely manner within 24 hours of admission. Subsequently, ED pharmacy services were granted an additional two full-time equivalent pharmacists as part of a short-term Department of Health funding initiative to improve patient flow.

A proactive model of care was implemented through the creation of an Acute Surgical Admission Pharmacist (ASAP) and Acute Medical Admission Pharmacist (AMAP) in the ED of a major hospital. The primary roles of ASAP and AMAP were to complete Best Possible Medication Histories (BPMHs) for surgical and medical admissions, respectively.

The objectives of this pilot were to review patients in a timely manner, improve patient safety and increase the efficiency of wards pharmacists.

## Methods

### Model establishment

- Two full-time weekday ASAP and AMAP roles were introduced into the ED for 15 weeks, in addition to the regular Emergency Medicine pharmacist.
- This model operated during the weekdays from 0800 to 1700, servicing 40 cubicles in the main ED floor and 32 beds in the Short Stay Unit.

### External stakeholders engagement

- Engaged ED Director and Operations Director to implement this pilot.

### Patient prioritisation

- Patients accepted for an inpatient admission or referred by multidisciplinary members were screened and prioritised using local criteria for high risk of medication harm (Box 1).

### Continuous Improvement Process

- The ED pharmacy team held regular working group meetings and utilised a Plan-Do-Study-Act (PDSA) cycle to tailor processes and improve efficiency.
- During the pilot, flexibility of roles with strong, effective team communication became essential to the improvement of processes.

#### Box 1. Prioritisation criteria for high risk of medication harm

| Medications                                    | Conditions                   | Other   |
|--|------------------------------|---|
| Anticoagulants                                 | AF                           | Nursing home admission  |
| Antiepileptics (excl. pregabalin & gabapentin) | Antipsychotics and age ≥ 65  | History of poor medication adherence and requiring multiple therapies |
| Antiretrovirals                                | CKD / Dialysis               | Chronic liver disease   |
| Chemotherapy                                   | Diabetes – insulin dependent | Homeless or difficulty obtaining therapies within 30 days             |
| Clozapine                                      | Epilepsy                     | Transfers across sites or other hospitals                             |
| Immunosuppressants                             | Falls and age ≥ 65           | Multiple readmissions   |
| Insulin  | Heart failure                |   |
| Lithium  | Parkinson's disease          |   |
| Suboxone/Methadone                             | Transplantation              |   |
| MAO inhibitors                                 |                              |   |
| (Lis) dexamfetamine, methylphenidate           |                              |   |
| Daily morphine equivalent dose exceeds 100mg   |                              |   |
| Multiple regular antipsychotic medications     |                              |   |
| Medications with doses > licenced max dose     |                              |   |
| Antipsychotic depot due in 4 days              |                              |   |
| Restricted antimicrobials                      |                              |   |

## Results

Data was collected during the pilot between April to July 2023, and compared to the same period in 2022. During the pilot, a daily average of 24 BPMHs (equivalent to 23% of all new admissions) were completed, which influenced an increased rate of weekday high risk BPMH from 68% (2022) to 81% (2023) (Fig. 1)

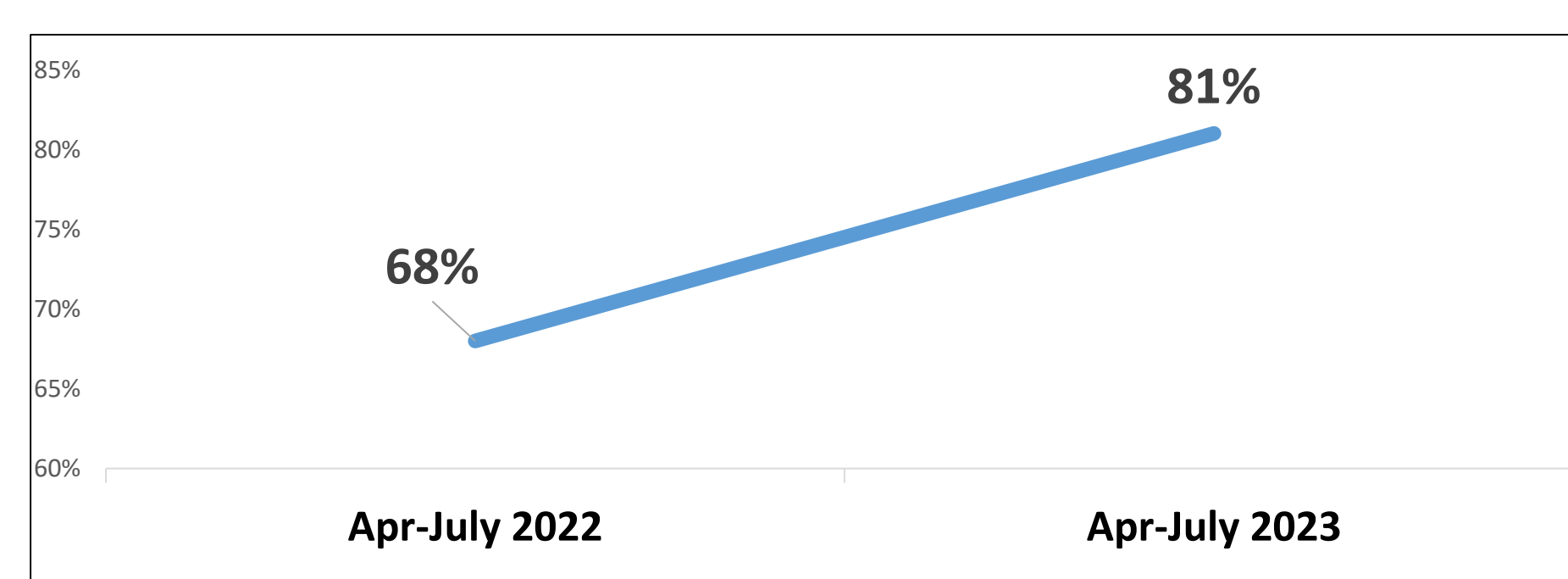


Figure 1. Average high risk BPMH during weekday

Figure 2. BPMH completion within 24 hours of admission

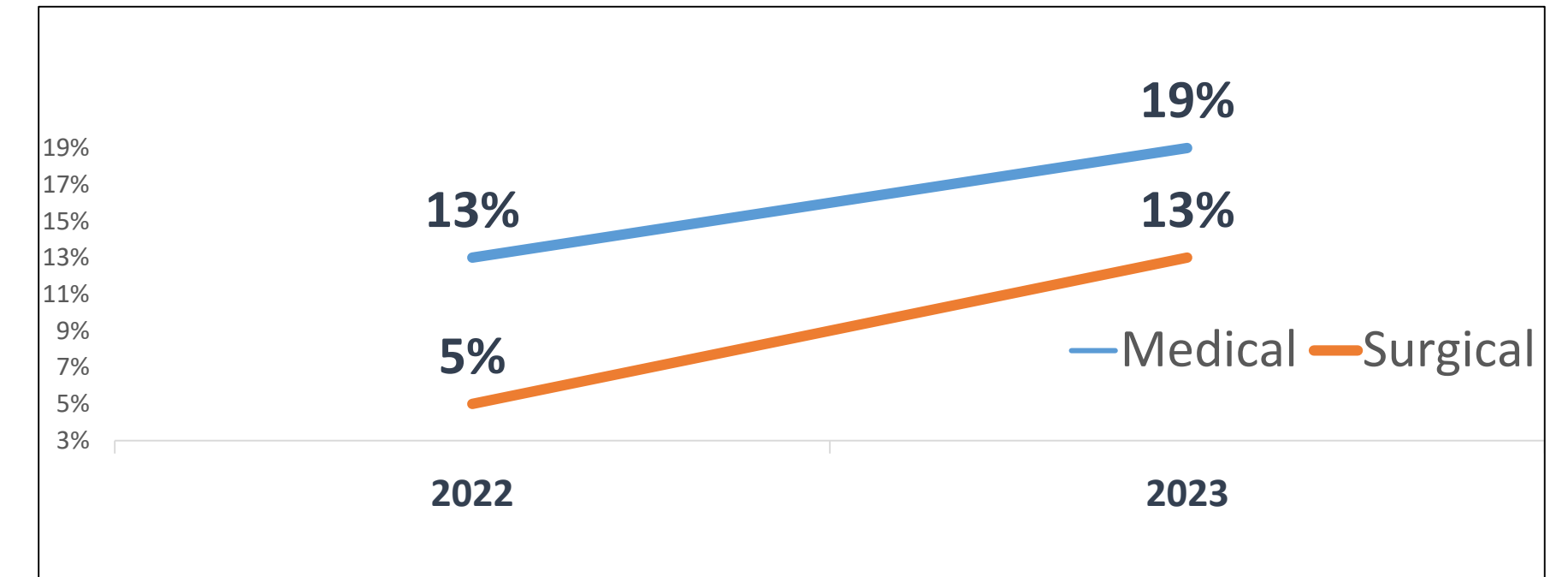


Table 1. BPMH completion within 24 hours of admission per General Medicine unit (month-by-month)

| LEGEND      | April |      | May  |      | June |      | July |      |
|-------------|-------|------|------|------|------|------|------|------|
|             | 2022  | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 |
| Gen Med(A)* | 4%    | 19%  | 12%  | 22%  | 15%  | 17%  | 20%  | 19%  |
| Gen Med(B)* | 8%    | 22%  | 15%  | 21%  | 6%   | 22%  | 15%  | 35%  |
| Gen Med(C)* | 4%    | 21%  | 13%  | 19%  | 11%  | 32%  | 19%  | 19%  |
| Gen Med(D)* | 12%   | 19%  | 23%  | 19%  | 16%  | 19%  | 18%  | 19%  |
| Gen Med(E)* | 10%   | 9%   | 18%  | 11%  | 18%  | 15%  | 19%  | 13%  |

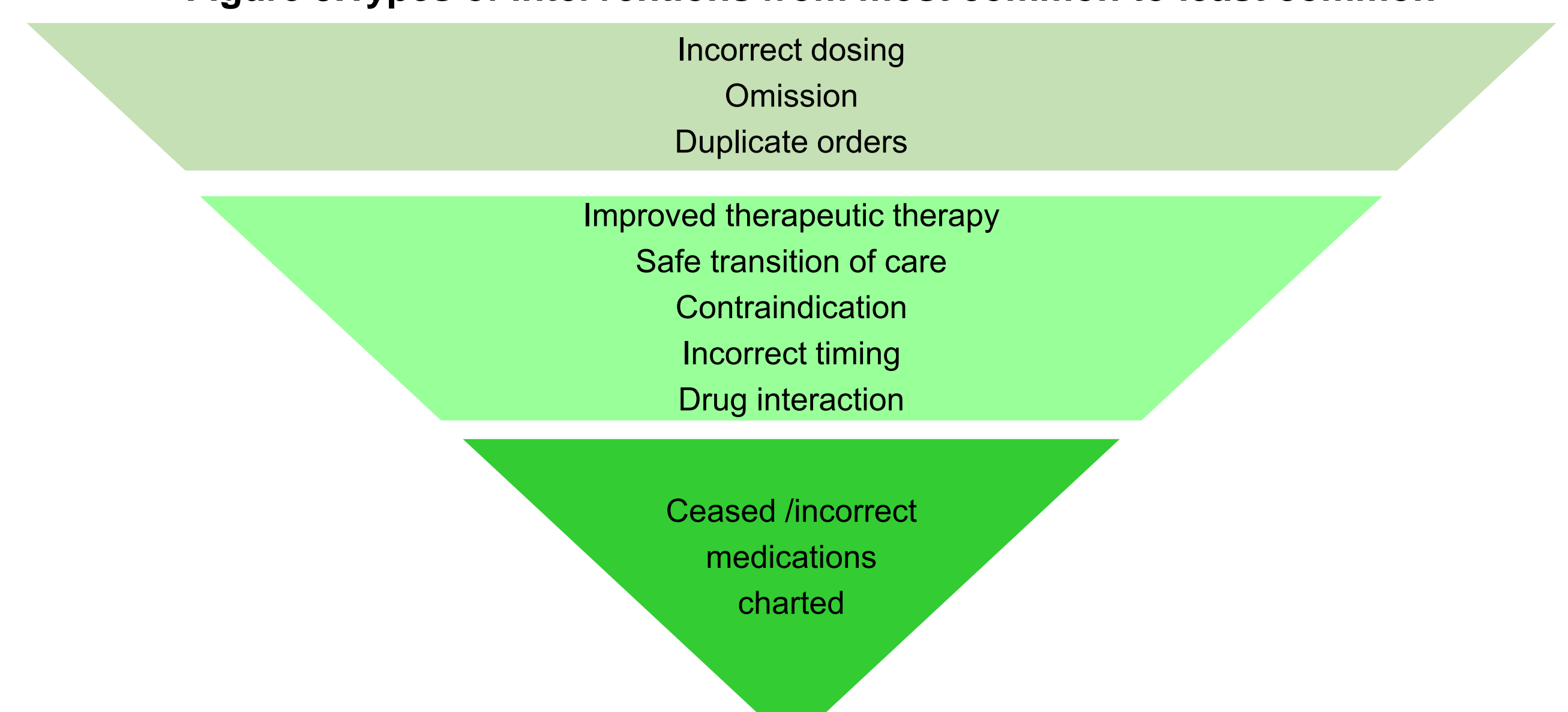
\*Gen Med = General Medicine (A)-(E)

Table 2. BPMH completion within 24 hours of admission per surgical unit (month-by-month)

| LEGEND         | April |      | May  |      | June |      | July |      |
|----------------|-------|------|------|------|------|------|------|------|
|                | 2022  | 2023 | 2022 | 2023 | 2022 | 2023 | 2022 | 2023 |
| Acute Gen Surg | 7%    | 18%  | 15%  | 16%  | 4%   | 21%  | 11%  | 10%  |
| Gen Surg 1     | 0%    | 17%  | 0%   | 22%  | 0%   | 14%  | 7%   | 13%  |
| Gen Surg 2     | 0%    | 11%  | 0%   | 7%   | 9%   | 0%   | 0%   | 0%   |
| Orthopaedics   | 12%   | 17%  | 11%  | 14%  | 10%  | 19%  | 9%   | 16%  |
| Plastics       | 5%    | 21%  | 16%  | 20%  | 4%   | 0%   | 0%   | 8%   |
| Urology        | 8%    | 7%   | 8%   | 14%  | 6%   | 19%  | 0%   | 27%  |
| Vascular       | 3%    | 10%  | 0%   | 7%   | 0%   | 3%   | 0%   | 11%  |

The weekday chart screening rate improved by 4%. A one-week snapshot of clinical intervention data demonstrated that 87% of MRPs in ED were moderate-to-high impact interventions, and 41% were time-critical.

Figure 3. Types of interventions from most common to least common



The impact of the expanded service was well-received by ED staff as indicated through a survey and positive verbal feedback from ED staff, inpatient medical teams and ward pharmacists.

## Discussion

- Our evaluation demonstrated that more than one-fifth of new admissions were seen by ED pharmacists. However, whilst our ED pharmacy services only operated 8-hours per day, the total number of all admissions included evening and overnight admissions when ED pharmacists were not present.
- Analysis of the rate of BPMHs completed within 24-hours was chosen as this demonstrates the impact of early BPMHs completed in ED. A sub-analysis demonstrated that there was great variability in improvements between different months and unit teams (Table 1 and 2). Several units showed double or triple increased rates of BPMHs completed.
- Weekday chart screening rate improved slightly as our pharmacists already prioritise timely chart reviews. Thus, the percentage of chart reviews prior to the pilot was already high.
- With higher rates of high risk BPMHs completed, positive flow-on effects for ward clinical pharmacy services were evident. Ward pharmacists were able to have more capacity to attend ward rounds, spend more time on clinical screening and dedicate more time to optimise discharge involvement.
- Future developments to further improve patient safety and workflow efficiency could include an expansion of extended hours for ED pharmacists and Partnered Pharmacist Medication Charting in the ED.

## Conclusion

The expansion of the ED pharmacy team with ASAP and AMAP roles enabled timeliness of patient care with efficiency gained through prioritisation and teamwork. Future studies are needed to focus on the impact on patient flow.

## References

- Rothwell M, Jukka C, Lum E, Mitchell C, Kyriakides P. Retrospective analysis of emergency readmissions to rural and regional hospitals. *J Pharm Prac Res* 2011; 41:290-4.
- Whitaker AS, Cottrell WN. What proportion of unplanned re-presentations to an emergency department are medication related and preventable? *J Pharm Prac Res* 2019; 49: 546-556

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