

# The impact of the introduction of an electronic management system on clinical pharmacy processes

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## Background

In July 2016 the EPAS (Enterprise Patient Administration System) was introduced in The Queen Elizabeth Hospital. This integrated system is intended to ultimately provide a consistent and complete electronic health record for every patient admitted to a South Australian public hospital or health service.

Despite a robust pre-rollout familiarisation and training period involving both on-line and face-to-face training opportunities, pharmacy considered the change from a paper-based to a complex electronic management system had the potential to influence the efficiency of the clinical pharmacy process.

## Aim

To quantify the impact of the introduction of EPAS on the conduct of four fundamental aspects of the clinical pharmacy process immediately following the EPAS rollout and at 6 weeks post-implementation.

## Method

The impact of the change to an electronic health record in terms of its effects on the clinical pharmacy process was assessed via the use of a time and motion study. A recording tool was developed that timed and recorded the delivery of four primary clinical pharmacy activities. By shadowing the clinical pharmacy team in their daily activities and recording the time to undertake tasks, the impact of the introduction of EPAS on clinical pharmacy efficiency was measured and evaluated. With the assistance of 4<sup>th</sup> year pharmacy students and pharmacy assistants, baseline data were collected a) pre-implementation b) immediately following the change and c) at 6-weeks post implementation.

## Measuring Instrument

A tool was developed in Microsoft Excel, allowing the timing and recording of all component activities undertaken in four pivotal practice areas:

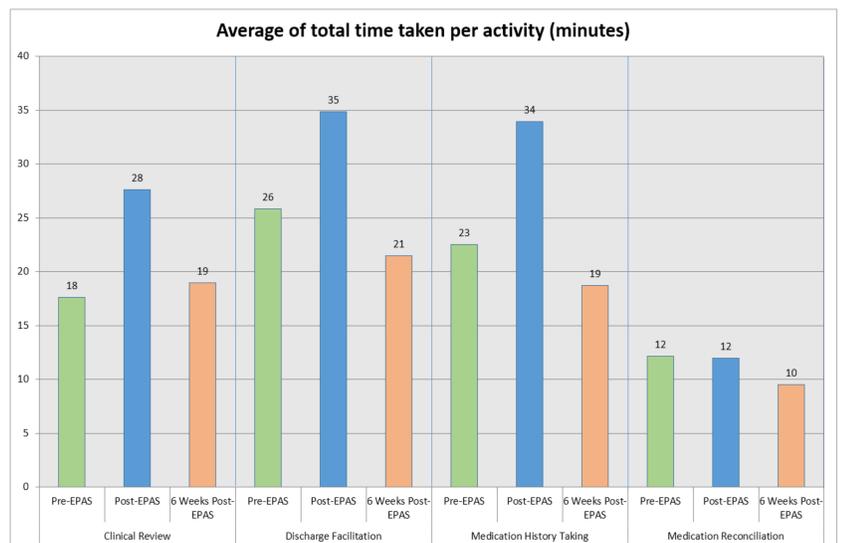
- Medication history taking
- Medicines reconciliation
- Clinical Review
- Discharge facilitation

The tool also permitted the recording of any clinical interventions undertaken during any of these activities. See screenshots below.

## Results

255 recordings were made across the four activities during the study period. The change from paper based procedures to a complex electronic patient management system had an immediate impact on the time taken to perform three of the four key clinical pharmacy activities. The time to undertake a medication history increased by 51%, a clinical review by 56%, and discharge facilitation by 35%. The only process unaffected by the change was medicines reconciliation.

Reassuringly, the follow-up study demonstrated that by six weeks post-implementation the time required for of the all clinical pharmacy processes had either returned to baseline or shown a trend towards a greater level of efficiency.



## Conclusion

Despite the provision of a comprehensive familiarisation and training period preceding the introduction of the EPAS electronic health record system at The Queen Elizabeth Hospital, unfamiliarity with processes resulted in a substantial impact on the time required to undertake familiar clinical pharmacy activities. This effect was short lived however and process efficiency was regained or improved by six weeks post implementation. These results indicate the extra support that may be required in the immediate post-implementation period at other sites when they introduce EPAS or similar electronic health record systems.

The figure displays four screenshots of the 'TQEH Pharmacy Time and Motion Recorder' software interface. Each screenshot shows a form for recording a specific clinical pharmacy activity. The forms include sections for 'Choose the timing of the study' (Pre-EPAS or Post-EPAS), 'Date and person being assessed', 'Staff member being observed', 'Patient URN', and a 'Timer Function' with a digital clock. The 'What activity is being measured?' dropdown is set to the corresponding activity name. The main body of each form contains a list of checkboxes for recording various aspects of the activity, such as 'Discharge requirements were confirmed and documented' for Medication History Taking, or 'The following discharge facilitation activities were undertaken' for Discharge Facilitation. A 'Notes about this activity can be recorded here' text area is provided at the bottom of each form. The interface is designed for data entry into a spreadsheet.