CAN ELECTRONIC ORDER SETS REDUCE DELAYS IN PRESCRIBING MEDICATIONS ON ADMISSION TO PICU?

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Introduction and aims

University Hospitals Bristol has been using the Philips ICCA electronic prescribing system across all adult, paediatric and neonatal critical care services since 2016. The "order set" function had not been used on PICU prior to this project.

The PICU quality improvement group decided to explore the benefits of the order set function with the aim of improving prescribing efficiency and uniformity across the unit. A multi-disciplinary working group designed an order set of 12 standard medications following elective cardiac surgery in 0-11 month old children (the most common patient group on the unit). The order set was tested and launched in June 2017.

The aim of this study was to measure the difference in time taken to prescribe the list of medications before and after the implementation of the order set.

Methods

Data was collected retrospectively from the ICCA system on 15 patients pre and 15 patients post implementation. Results were then compiled into a spreadsheet for analysis.

What is an Order Set?
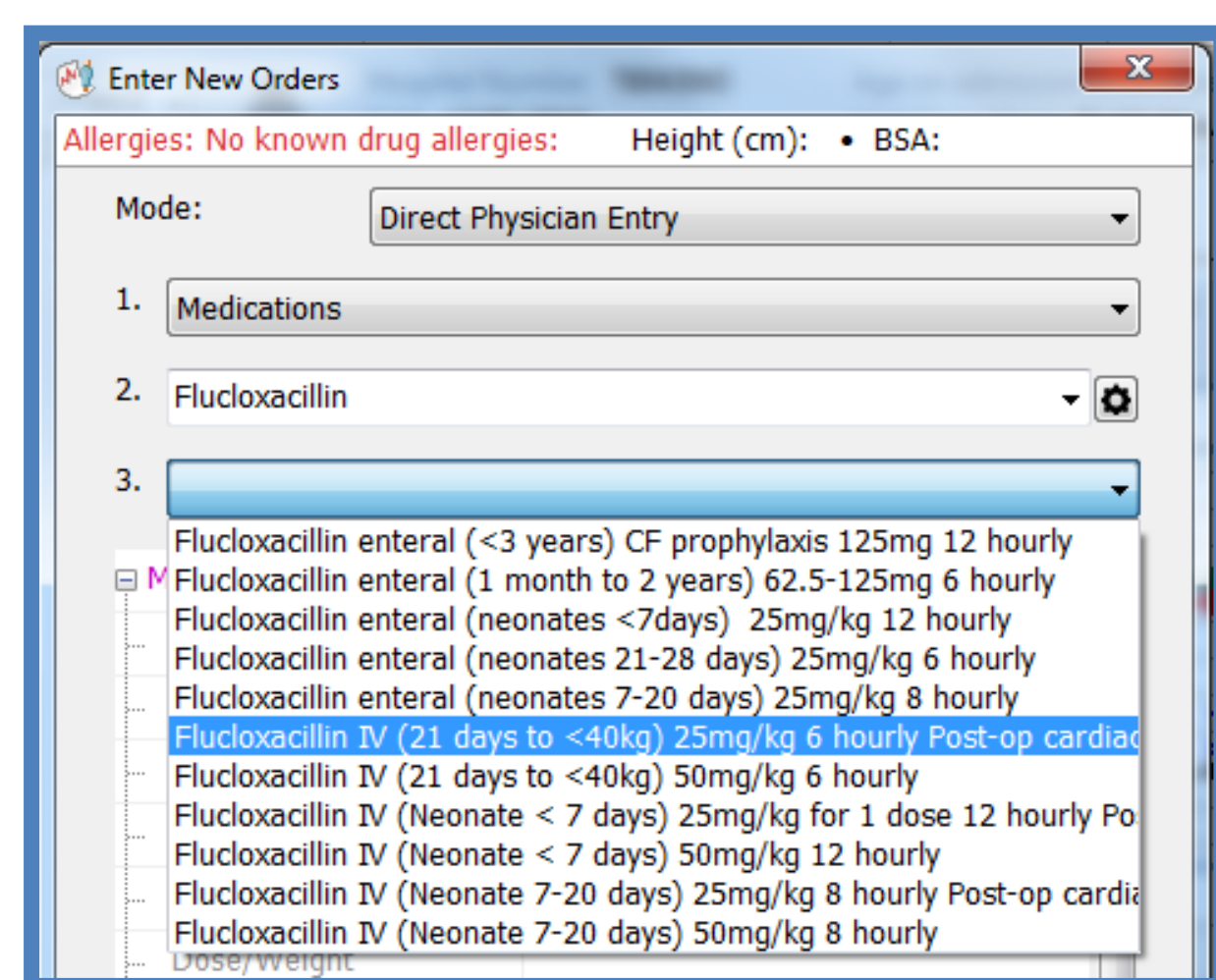
Order sets can be created within Phillips ICCA (electronic prescribing programme) to improve prescribing efficiency. An order set is a pre-populated list of medications designed for a specific scenario. This tool helps guide the prescriber to the correct choice by removing choices irrelevant to that scenario. In the example below, 11 flucloxacillin options are reduced to 1.
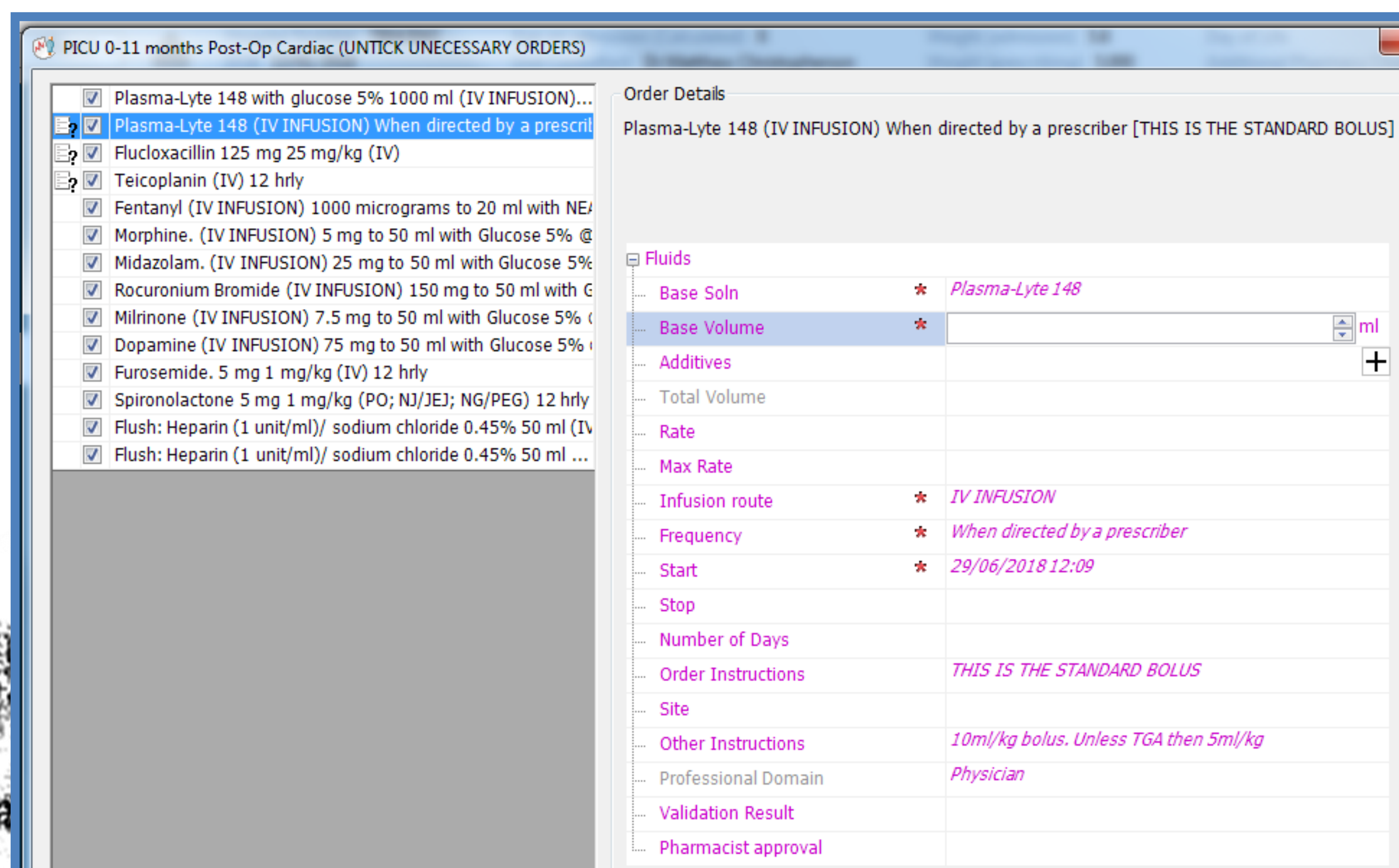

Results

The time taken to prescribe all 12 medications was reduced on average by 9.4 hours per patient when the order set was used. The average time saved per medication was 43 minutes.

Pre implementation, the average time taken to prescribe the medication list was 11.4 hours (95% CI [5.5,17.3]). Post implementation, this time was reduced to 2 hours (95% CI [0.5,3.5]).

Pre implementation, prescribing was started at least 30 minutes (average) after the patient arrived on PICU. Using the order set, prescriptions were started 30 minutes before patient admission.
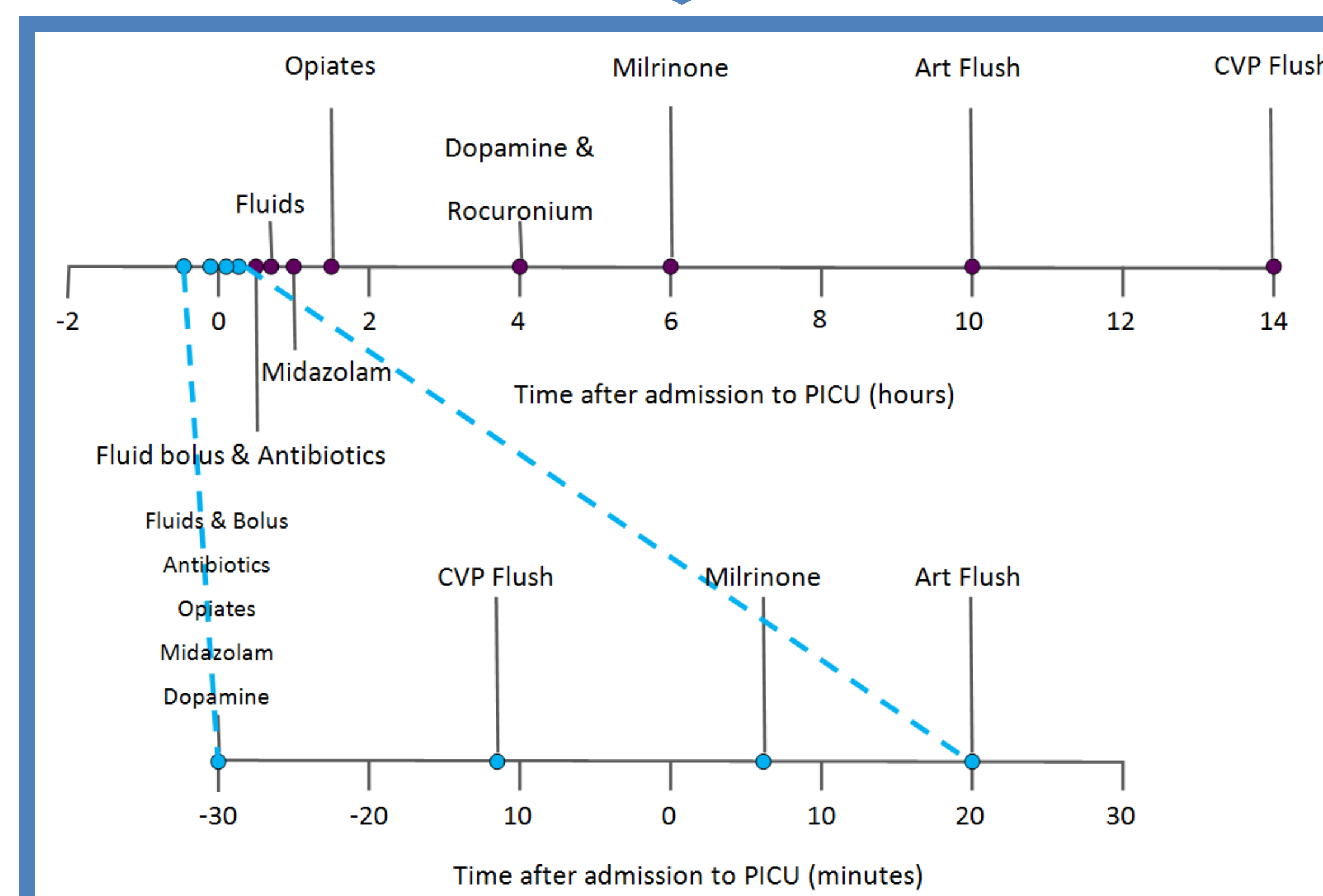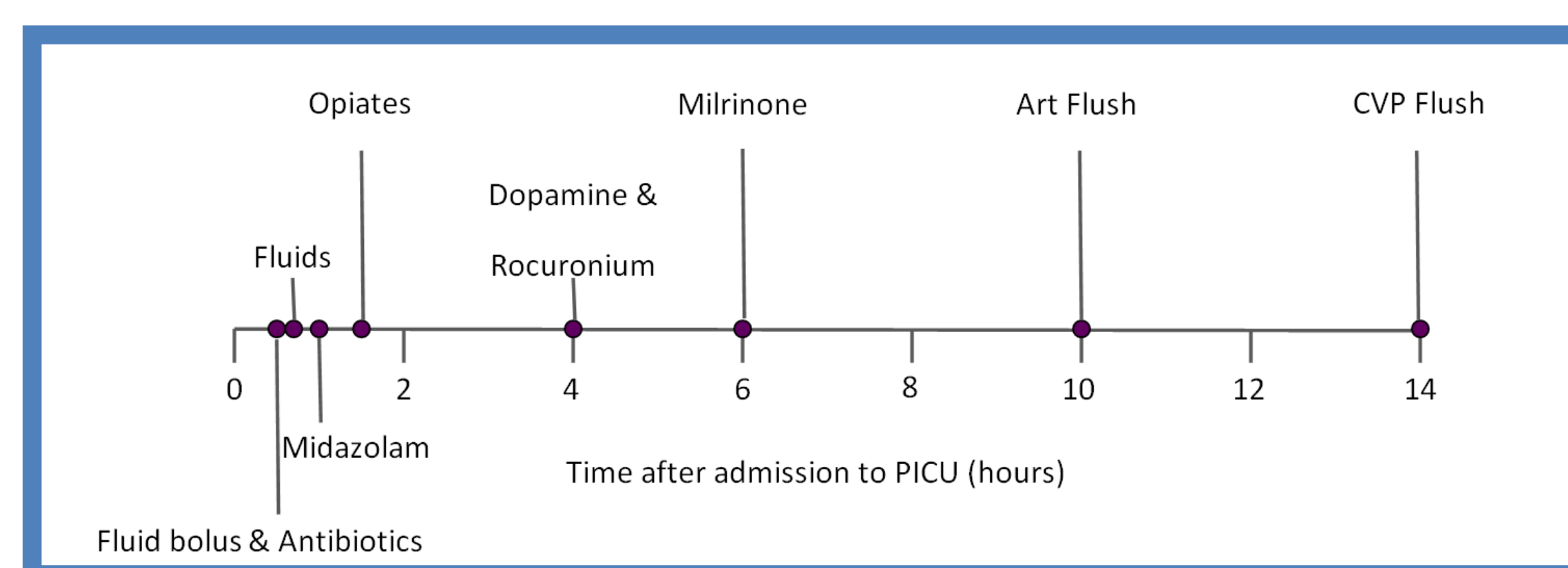
Discussion

The reduction in time taken to prescribe the standard list of medications by the use of the order set was not surprising. The number of clicks and calculations required to be done by the prescriber was dramatically reduced by the use of the order set. The order set provided a standard list of requirements that was not available to the prescriber previously, so flushes were frequently missed until prompted by the nursing staff on the next day shift.

Although the introduction of electronic prescribing within the unit has had many advantages, one of the continuing disadvantages is that of transcribing medications onto and off the system on admission and discharge from the unit. Before the implementation of the order sets, there was a significant length of time where the patient had been admitted with infusions running, but no prescription was on the system. Aside from the obvious patient safety aspects, this meant that the nurses could not chart the infusion rates on the system either. After the introduction of the order sets, all patients had some prescriptions completed before they arrived on the unit, significantly reducing the risk of error. For example, all sedation infusions were prescribed pre-admission using the order sets.

Conclusion

Implementation of an order set for this patient group reduced, but did not remove the risk of running infusions without a live prescription. This project is an example of how prescribing support functions within electronic prescribing packages can reduce time taken to write up medications within our unit. This allows prescribers to dedicate more time to other duties.
Limitations of the project were that we did not have the capability to assess a reduction in medication errors. We now have increased support within the Pharmacy Informatics team to enable this for future projects, such as creating order sets with combined prescription and blood levels e.g. tacrolimus. A high level of clinical knowledge from the pharmacy support team and strong engagement with the clinical team was essential in creating a product that was fit for purpose.