



**Singapore Healthcare Management 2017**

# “Thumbs-up” for Patient-Controlled Analgesia (PCA) Premix Morphine in Major Operating Theatre (MOT)



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## INTRODUCTION

Post-operative pain is the main concern for surgical patients. Anaesthetist may prescribe PCA which involves the use of a programmed pump to deliver Morphine intravenously upon patient’s demand.



### Background

Anaesthetist collects a PCA pump and a sterile cassette from the Post Anaesthesia Care Unit (PACU) to the Operating Room (OR), obtains 5 ampoules of Morphine from the Anaesthetic Unit (AU) Nurse, injects Morphine and diluent into the cassette, labels it and lock onto the PCA pump. This process may takes 32 minutes.

## OBJECTIVES

- To reduce PCA preparation time by the Anaesthetist.
- To reduce the incidence of potential PCA Morphine spillage.

## METHOD

### Root Cause Analysis

Root causes were;

- Process:** Unavailability of AU nurse to issue Morphine ampoules and lock the pump. AU nurse may be assisting the Anaesthetist in the other OR.
- Staff:** Unfamiliarity of new Anaesthetist Medical Officer on the dilution method with potential spillage resulting in delay.

### Solutions Implementation

Brainstorming were carried out and the following were implemented:

- Training of pharmacy staff to prepare Morphine cassettes.
- Procurement of a medical fridge to store Premix Morphine cassettes.
- Enhancement of workflow to include:



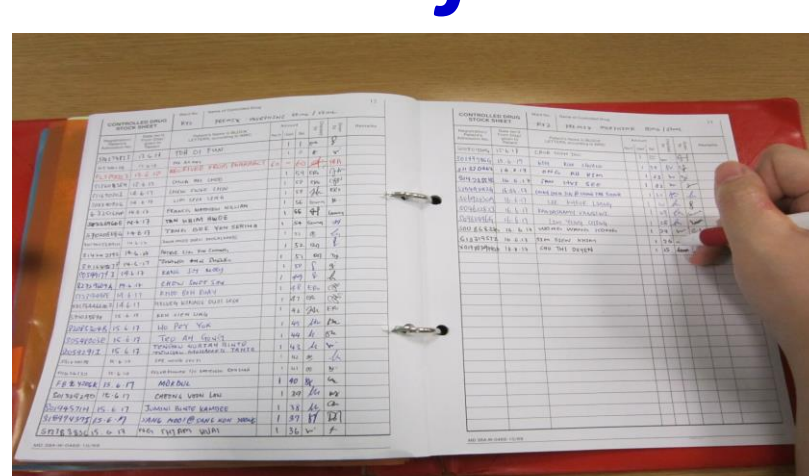
*(i) Receiving of Premix Morphine from Pharmacist*

*(ii) Storage of Premix Morphine in designated medical fridge*

*(iii) Counting of Premix Morphine during change of shift*



*(iv) Issuing of Premix Morphine*



*(v) Documenting of Premix Morphine*

- Briefings to anaesthetists and nurses.

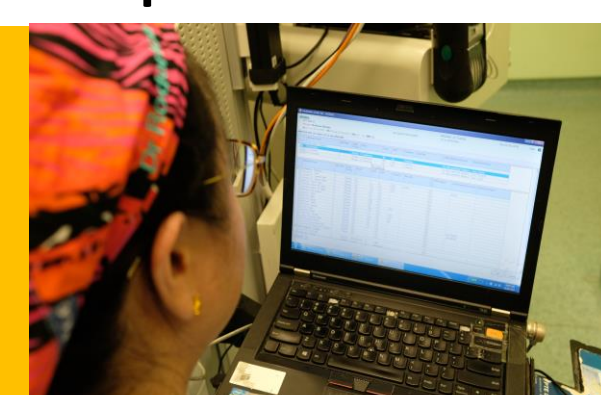
### BEFORE IMPLEMENTATION

Anaesthetist collects PCA at PACU



5 mins

Anaesthetist prescribes PCA on-line



1 min

Anaesthetist looks out for AU nurse to issue 5 ampoules of Morphine



20 mins

Anaesthetist prepares & dilutes Morphine



5 mins

Anaesthetist attaches Morphine cassette to PCA pump and AU nurse locks pump



1 min

Post-operatively, locked PCA pump accompanies patient to PACU

Total time: 32 mins

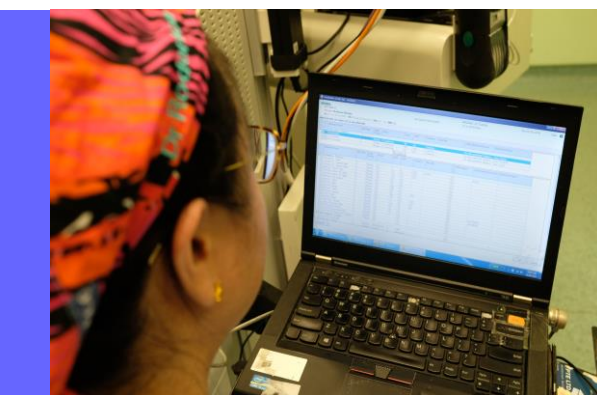
### AFTER IMPLEMENTATION

Anaesthetist collects PCA at PACU



5 mins

Anaesthetist prescribes PCA on-line



1 min

Post-operatively, PCA pump without Morphine cassette accompanies patient to PACU

At PACU, 2 RNs check and retrieve Premix Morphine from fridge and lock onto PCA pump



5 mins

Total time: 11 minutes

**TOTAL TIME SAVED: 21 Mins**

## RESULTS

The preparation time for Morphine cassette has been reduced by 65% to 11 minutes. A survey was conducted, 97% of the Anaesthetists were happy with the new workflow as it enabled them to concentrate more on patient clinical care. To date, PACU nurses have not reported any incidence of PCA Morphine volume discrepancy.

## CONCLUSION

The introduction of Premix Morphine has benefitted the Anaesthetists and the OR nurses. The OR nurses have less Morphine ampoules to dispense and count at every change of shift. Patient safety is also ensured, meeting the organisational goal of “Zero Harm” to all peri-operative patients.