

# Nurse-led IV Bolus Opioids Administration in Post-Anaesthesia Care Unit (NLAO)

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## Aim

The **Nurse-Led bolus Opioids Administration (NLAO)** in Post-Anaesthesia Care Unit (PACU) initiative enhances care experience to surgical patients by transforming care via training and empowering nurses to administer bolus pain relief medications to surgical patients in the PACU area instead of the conventional pain management.

## Background

Conventionally, once patient reaches PACU, nurses will monitor their pain level and inform Anaesthetist if patient requires additional pain relief. Most of the time, Anaesthetists are inducing the patients in the operating theatre, and may not be able to **manage patient's pain in PACU in a timely manner**. Nurses who cared for patients in the recovery are familiar with their conditions but unable to administer pain relief medications without orders from the Anaesthetist.



The team comprise of members from Nursing, Anaesthesia and Ops supporting Day Surgery Centre and Peri-Operative Services in KTPH. The team believed that trained PACU nurses can administer pain relief when there is a Nurse-led order in the system. The patients do not need to wait for an Anaesthetist to assess and prescribe pain relief medications. **To be** workflow is marked with a **red** cross.

## Interventions / Implementation

The team applied Lean 6-sigma methodology, with the aim of a sustainable, value-add and affordable Nurse-Led Administration of Opioids post-surgery. The Anaesthetist will select the appropriate patients and NLAO trained Nurses are empowered to review and administer pain relieve medication to these patients based on the indicated criteria.

### Workflow on Clinicians choosing Nurse to administer pain relief

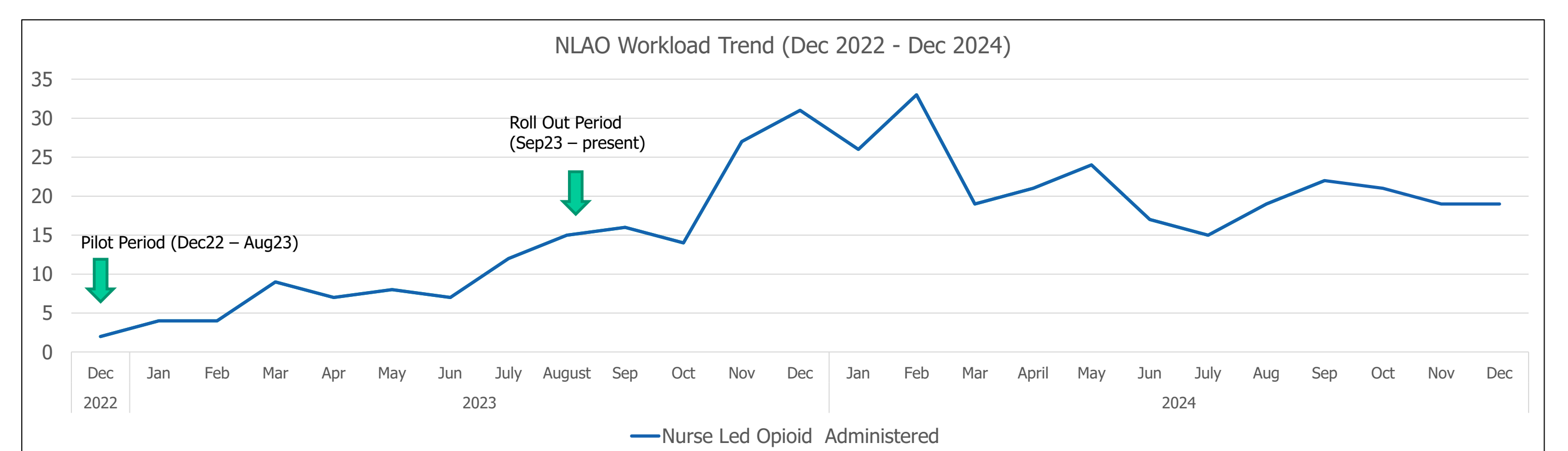
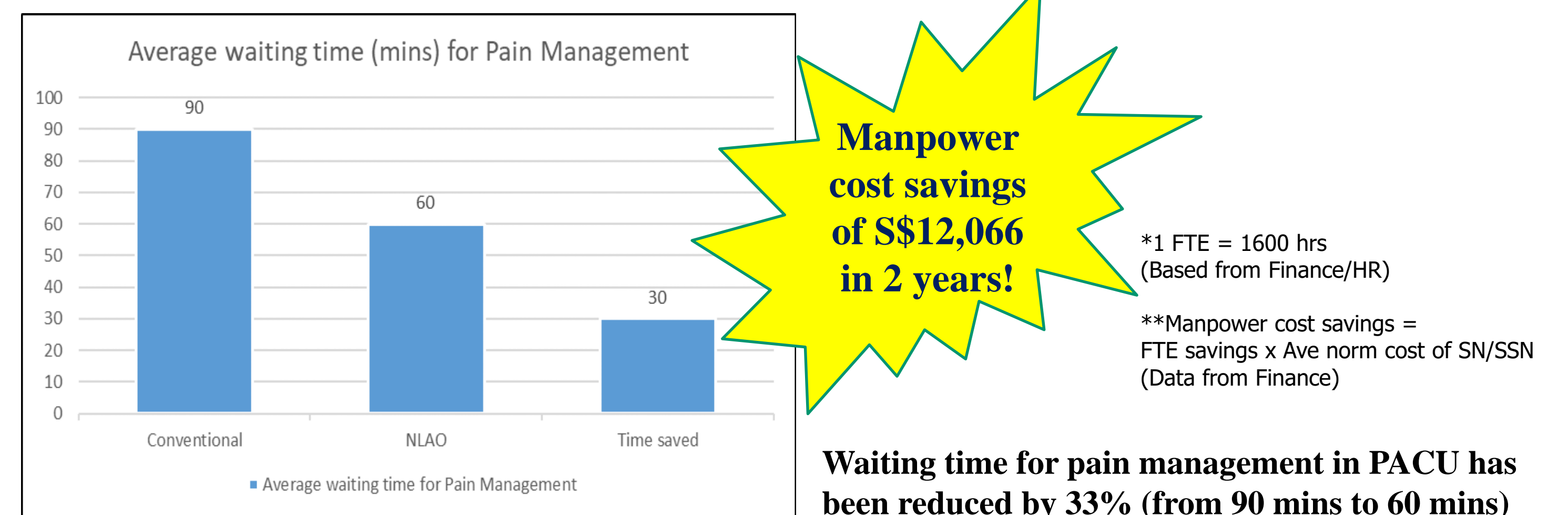
- Anesthetist will place the order under "Signed & Held". PACU nurse will Select the order and Release.
- Once the order is released, it will flow into "Active PACU Orders". The order will appear in MAR.
- The order detail will be shown as below: Ordered Dosage: Fentanyl: 25mcg per dose, Morphine: 1mg or 2mg per dose. Check what is the max dose ordered by the Anesthetist. Frequency: Every 5 minutes PRN for pain.
- MAR: To sign in MAR when administering Nurse led Opioid. Dual sign-off with witness. 2nd dose onwards: "Bolus from Bag/Syringe" to prevent double charging.
- Once Max dose reached, the order status color will show "Completed".

## Onward 2026

In alignment with Khoo Teck Puat Hospital's strategic plans, Onward 2026, implementing Nurse-Led IV Bolus Opioid Administration in the Post-Anaesthesia Care Unit (PACU), drive ambulatory first and elective surgery models while prioritizing quality, safety, and operational resilience. It encourages principles of enhanced recovery, patient centered care and a resilient healthcare system.

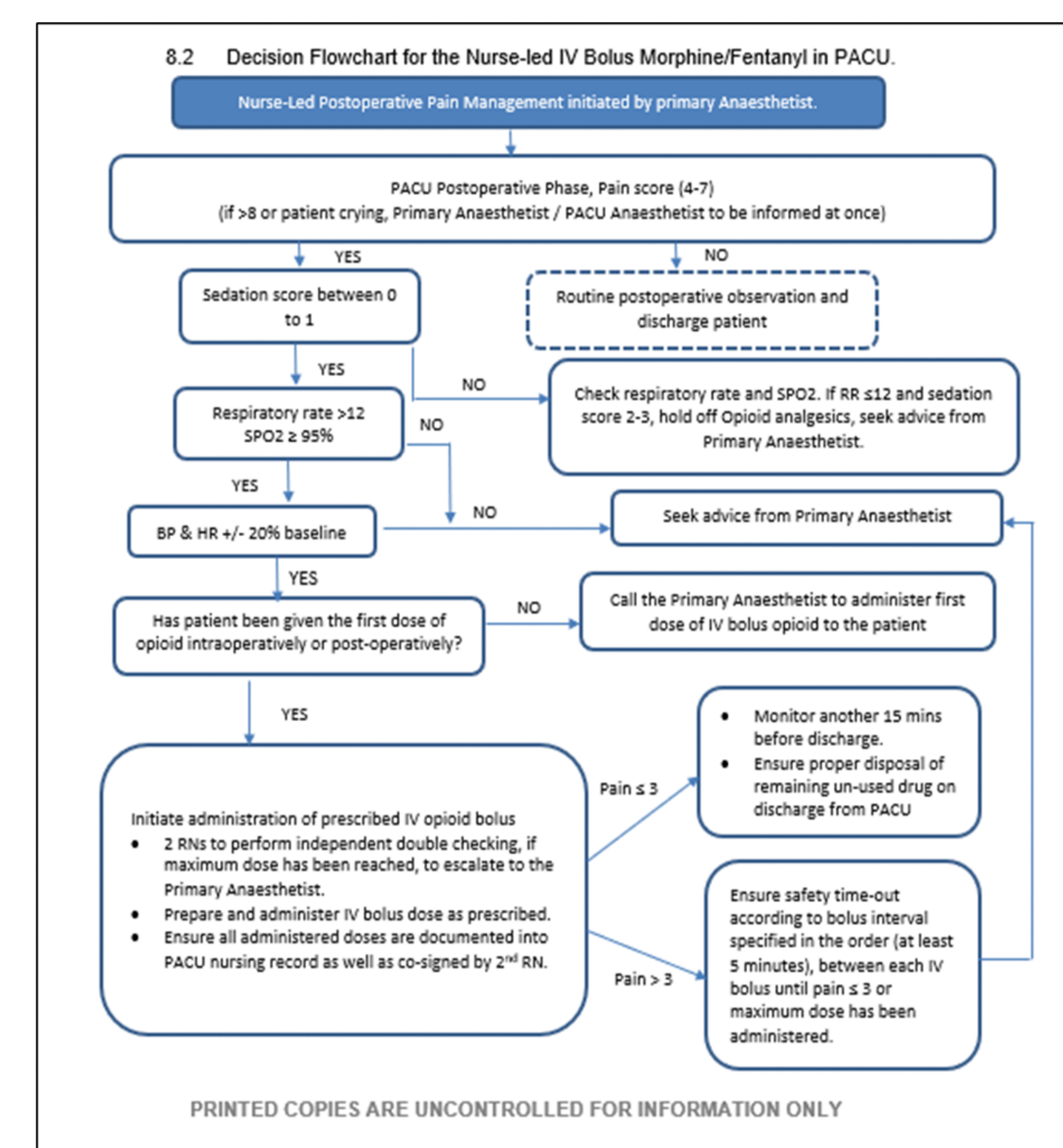
## Results & Outcomes

To date, 18 nurses were trained in Day Surgery Centre (DSC) and Major Operating Theatre (MOT) to carry out NLAO. A total of 411 NLAO cases were performed in PACU uneventfully from pilot (Dec 2022) until official roll out (Sep 2024) till date (Dec 2024). There is an improved patient turnaround time in PACU by 30 mins, translating to total time savings of 206h (equivalent to 0.13 FTE\*) or manpower cost savings of S\$12,066\*\* for the past two years. Overall feedback is there were better pain control with no adverse outcomes.



**Trained staff**, certified by the Consultant Anaesthetist, **function independently** to carry out Nurse-led Administration of Opioids under the supervision of the Consultant Anaesthetist. To date, all NLAO cases did not develop any post-operative complications or receive negative feedback.

**Nurses feedback** verbalized that **they felt confident and trusted in their clinical work** and comfortable to administer the pain relief medications. **The Consultant Anaesthetist** who supervised the selected nurses **commented that the nurses were confident as there was no difference to the current care provided as compared previously**, except that care is now expedited. **Other positive feedbacks** included **faster pain management, faster discharge process** and **streamlined of the existing processes**.



**For sustainability**, team incorporated the workflow into the policy for standardization. Team members also share learning points to improve any potential gaps. New staff will be orientated and trained. Reaccreditation will be held yearly.

Decision Flowchart for the Nurse-Led IV Bolus Opioids in PACU

## Conclusion

The well-received streamlined process has helped to managed patient's pain effectively, enhancing patient's comfort, reduce recovery time, and potentially minimize complications associated with inadequate pain control.