

OUTPATIENT PHARMACY AUTOMATION SYSTEM (OPAS): WHERE VISION INSPIRES IDEAS, INNOVATION DELIVERS VALUE

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Background & Objectives

Within Sunway Medical Centre, Sunway City’s seven-floor decentralised pharmacy model, an Outpatient Pharmacy Automation System (OPAS) was implemented as part of a healthcare transformation vision to adopt automation technology. This study aims to describe the journey behind this innovative implementation and its value in improving operational efficiency, medication safety, productivity, as well as patient and staff experience.

Method

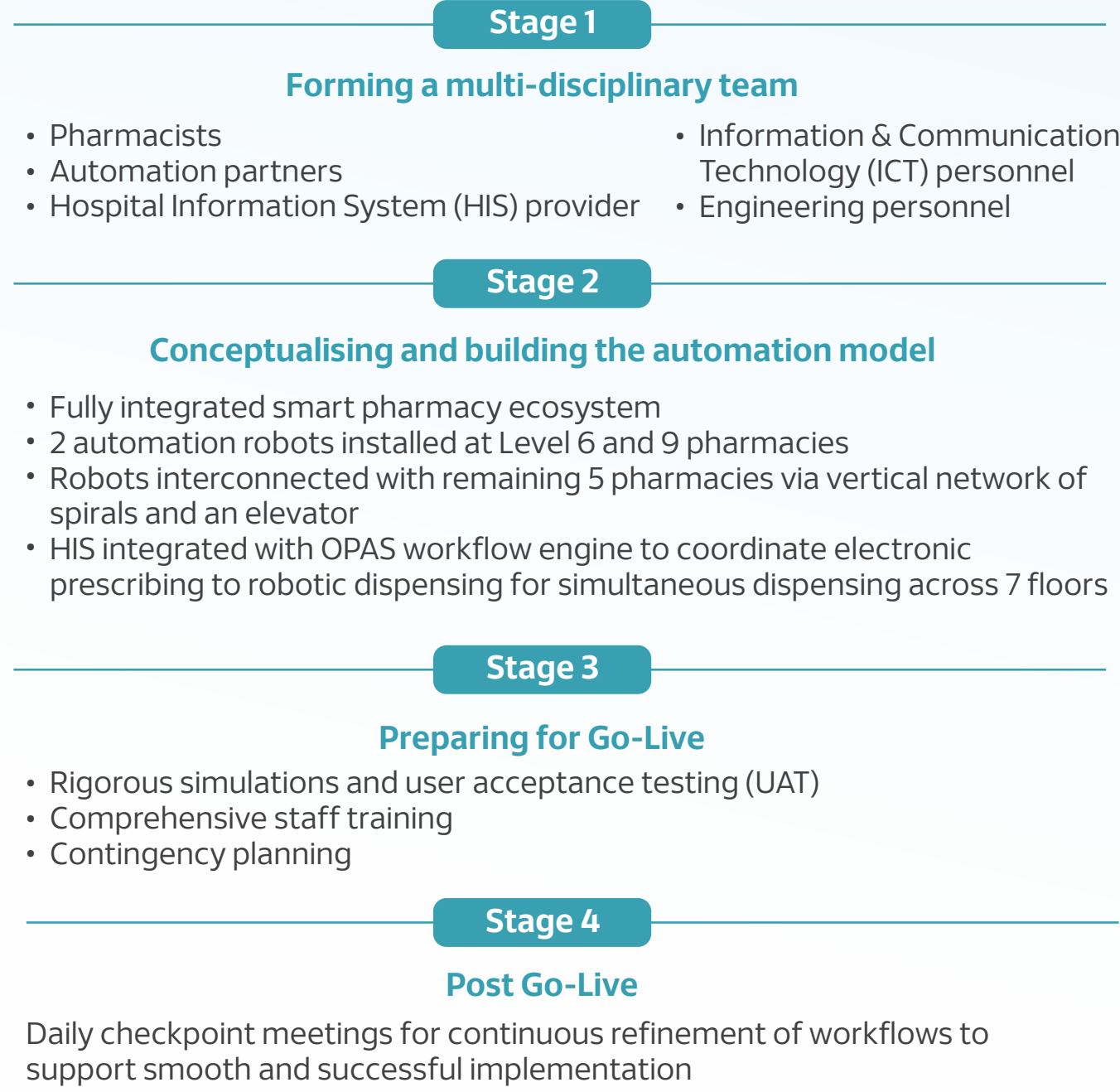


Figure 1: Fully integrated Outpatient Pharmacy Automation System (OPAS) and robotic picking arm (top, left), Outpatient pharmacist team (bottom right).

Results

1. Operational Efficiency
Post-OPAS implementation, a 50% reduction in patient’s wait time and pharmacy processing time was achieved, despite an 84% increase in prescription volume (Figure 2). This improvement was attributed to the high-speed robotic picking arm and the ability to manage high prescription volumes consistently during peak hours.

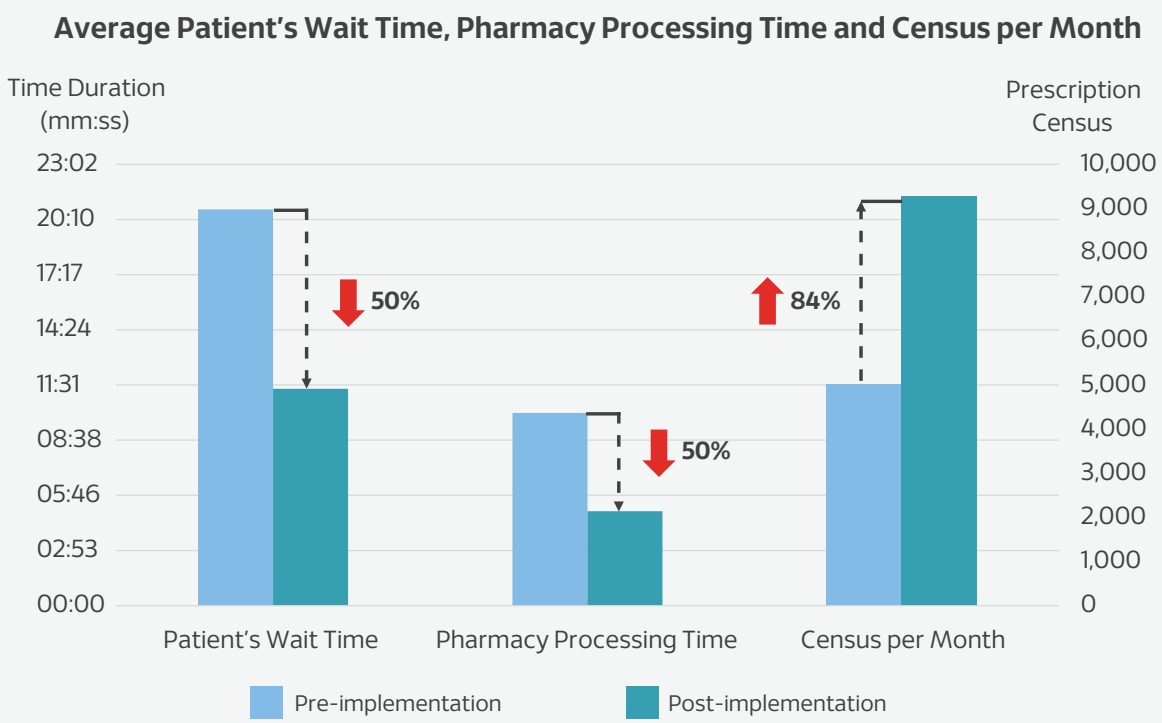


Figure 2: Patient’s wait time and pharmacy processing time pre- and post-implementation

2. Medication Safety
The combined safety features of OPAS including barcode recognition and verification of both medication and patient labels, resulted in reduction of picking error rates by 69% (Figure 3). Importantly, there were zero picking errors attributed to the automation.

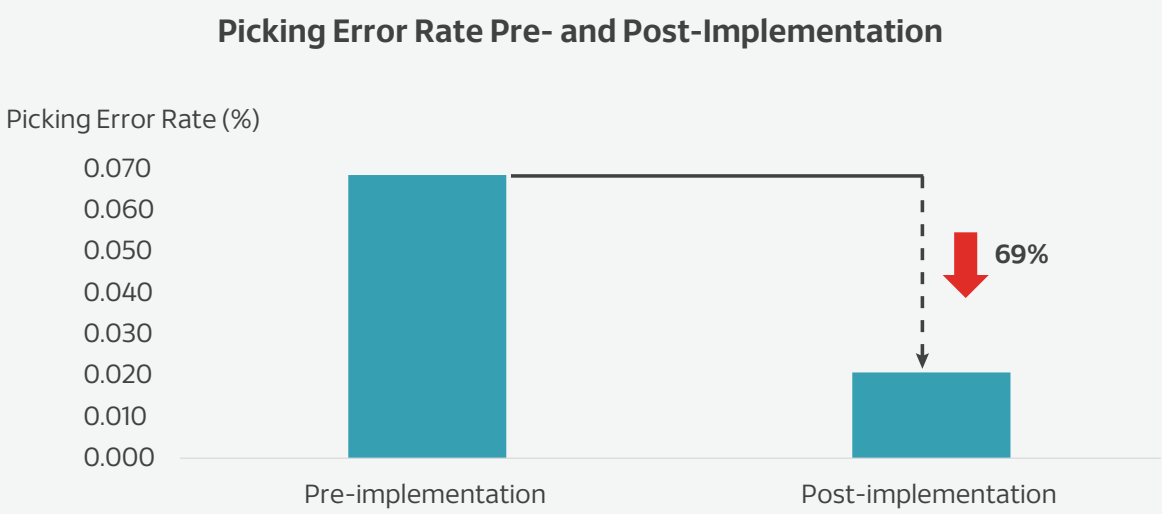


Figure 3: Picking error rate pre- and post-implementation

3. Human Resource Productivity
With progressive clinic expansions, OPAS improved productivity by **saving up to 1,698 man-hours per month** through efficiencies in prescription processing and inventory management. Manual efforts in picking, restocking, expiry checks, and stock takes are automated, enabling staff to focus more on patient care and value-added initiatives.

4. Patient Satisfaction
99.5% of patients surveyed
• agreed that OPAS has enhanced the hospital's overall impression.
• agreed that their pharmacy experience has improved.

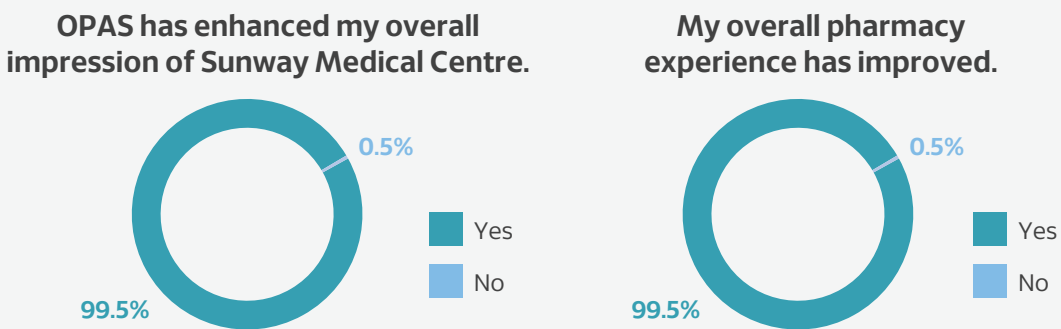


Figure 4: Results of patient satisfaction survey on service improvement post-implementation

5. Staff Satisfaction
100% of staff surveyed
• are satisfied working with OPAS.
• agreed that OPAS improved medication safety.
• agreed that OPAS improved overall operational efficiency in the pharmacy.

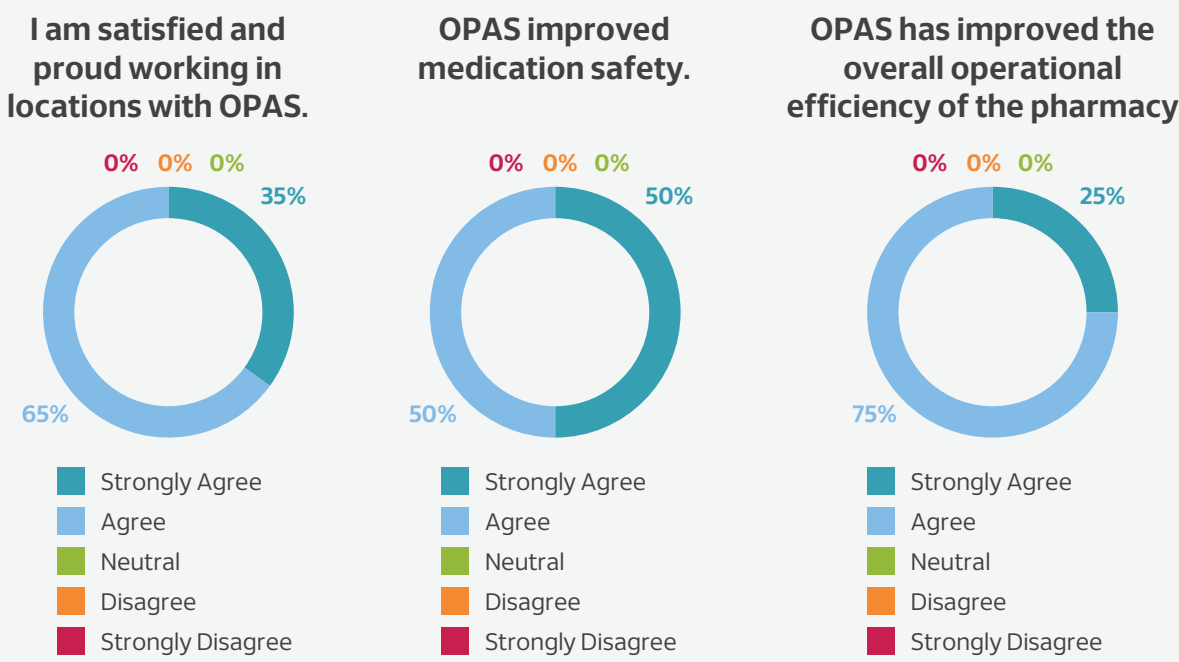


Figure 5: Results of staff satisfaction survey on implementation of Outpatient Pharmacy Automation System (OPAS)

Conclusion

Inspired by the hospital’s vision to be one of the leading private medical centres in the ASEAN region, this pioneering OPAS implementation established a fully integrated multi-level automation system that improves efficiency and supports patient-centric care. By leveraging technology and automation, this transformation advances innovation in hospital services, and enhances operational excellence and long-term sustainability, aligning with the broader healthcare paradigm shift from volume-based to value-based care.