A RETROSPECTIVE COHORT STUDY COMPARING PATIENT'S LENGTH OF STAY FROM HOLDING BAY TO PACU USING CLASSIC & INNOVATIVE MANAGEMENT APPROACHES

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OBJECTIVE

To evaluate and compare perioperative length of stay (LOS) between two patient cohorts managed under distinct workflows. The Classic approach reflected conventional management, while the Innovative approach introduced a centralized Nurse Coordinator role to streamline patient flow, enhance communication, and reduce delays. By transforming "waiting time into healing time," this study aimed to determine whether the redesigned model improved OR efficiency and overall patient throughput.

METHODS

A retrospective cohort study was conducted over two consecutive six-month phases with a Classic and Innovative approach to evaluate the impact of workflow redesign on perioperative efficiency in both minor and major surgical procedures.

Classic approach (Mar–Aug 2024): Patient flow through the Pre-operative Holding Bay, Operating Room, and Post-Anesthesia Care Unit (PACU) was managed independently by area-specific teams. With no centralized oversight, coordination was fragmented, communication was inconsistent, and delays were common.

Innovative approach (Sep 2024–Feb 2025): Following this phase, a Nurse Coordinator was introduced to provide centralized coordination of the entire perioperative journey. The coordinator synchronized patient movement, streamlined communication across zones, and optimized turnaround times, transforming perioperative care into a more integrated and predictable process.

TABLE 1. DEMOGRAPHICS DISTRIBUTION

Specialty	Pre Cases	Post Cases	% Change	Gender Shift	Age Trend
Breast Minor cases	40	52	+30%	Female (Stable ~100%)	Stable (40–65 years)
Breast Major cases	25	32	+28%	Female (Stable ~100%)	Slight ↑ in mean age (48 → 52 years)
Gynecology Minor cases	20	36	+80%	Female (Stable ~100%)	Broader (30–76 years)
Gynecology Major cases	28	35	+25%	Female (Stable ~100%)	Older (24.5 → 30.1 years)
Urology Minor cases	1,312	1,453	+11%	Female ↑ (to 26%)	Stable (45–70 years)
Urology Major cases	309	313	+1%	Female ↓ (40% → 26%)	Stable (50–75 years)
Pediatric Minor cases	30	38	+27%	Stable (M/F balanced)	No major shift
Pediatric Major cases	28	34	+21%	Stable (M/F balanced)	Younger (9.3 → 7.9 years)

TABLE 2. PERIOPERATIVE EFFICIENCY

Specialty	Holding Bay (Pre → Post, time, % change)	OR Time (Pre → Post, time, % change)	PACU (Pre → Post, time, % change)	Comments
Breast Minor cases	45 → 36 (–9, ↓20%)	60 → 29 (–31, ↓52%)	77 → 83 (+6, ↑6%)	Strong gain; consistent reductions , however PACU time increased
Breast Major cases	60 → 48 (–12, ↓20%)	90 → 65 (–25, ↓28%)	122 → 137 (+15, ↑12 %)	improvements, however PACU time increased
Gynaecology Minor cases	55 → 45 (–10, ↓18%)	50 → 40 (–10, ↓20%)	25 → 20 (–5, ↓20%)	Moderate, consistent gains across all phases
Gynaecology Major cases	120 → 41 (–79,↓66%)	120 → 72 (–48, ↓40%)	40 → 30 (–10, ↓25%)	Major efficiency gains, especially Holding Bay
Urology Minor cases	98 → 19 (–79, ↓80%)	90 → 69 (–21, ↓23%)	60 → 65 (+5, ↑8%)	Dramatic Holding Bay improvement; OR , however PACU time increased
Urology Major cases	530 → 182 (–348, ↓66%)	110 → 95 (–15, ↓14%)	50 → 40 (–10, ↓20%)	Holding Bay is the main driver; modest OR and PACU gains
Pediatric Minor cases	20 → 17 (–3, ↓15%)	35 → 30 (–5, ↓14%)	45 → 32 (–13, ↓29%)	Best PACU gain; smaller OR and Holding Bay improvements
Pediatric Major cases	40 → 30 (–10, ↓25%)	150 → 90 (–60, ↓40%)	35 → 28 (–7, ↓20%)	Largest OR gain; consistent Holding Bay and PACU reductions

RESULTS

The patient demographics evolved during the intervention.(table 1) .

The innovative approach led to improved efficiency across most peri-operative phases namely preoperative Holding Bay, however PACU time was increased in many specialties (table 2). Minor procedures demonstrated efficiency gains(figure 1),while Major cases also highlighted the improvements (figure 2)

Fig 1: Perioperative efficiency improvement during Innovative approach (Minor cases)

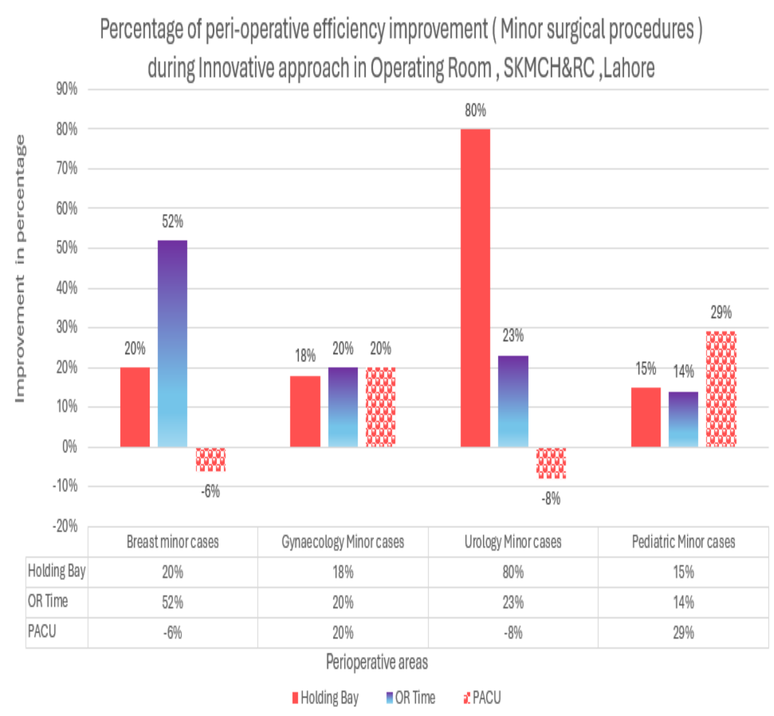
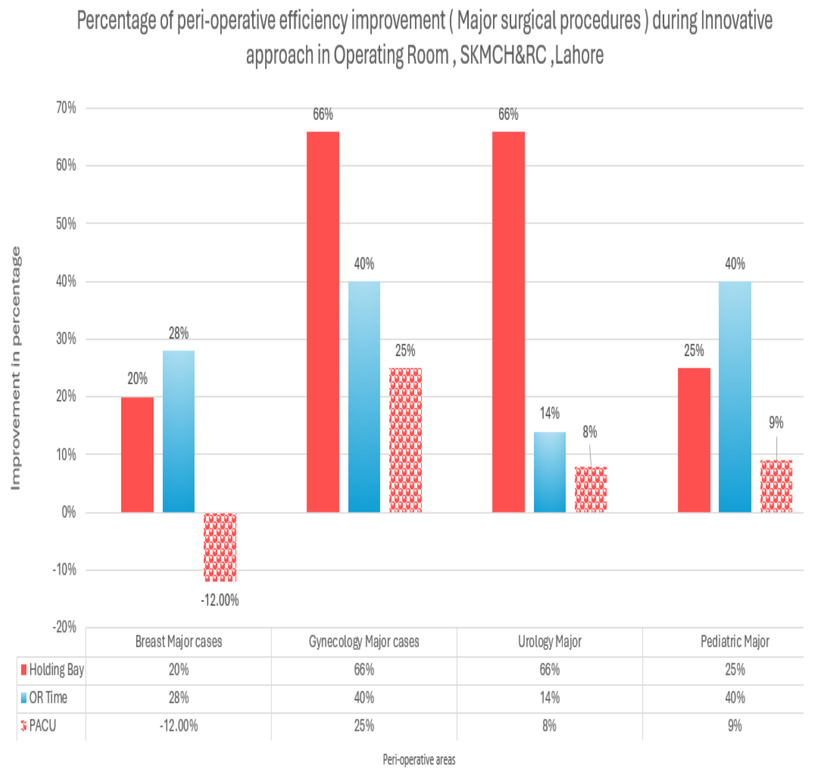


Fig 1: Perioperative efficiency improvement during Innovative approach (Major cases)



CONCLUSION

In the operating room, **every minute is a resource**, and this study shows how a nurse's role **turned time into throughput**. By streamlining workflows, the surgical procedures achieved measurable efficiency gains across OR, Holding Bay, and PACU. Although , in many specialties, PACU time was found increased which will be considered for further intervention. These findings highlight how targeted interventions can transform peri-operative efficiency and maximize patient care capacity.