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Hospitalisation at Home for Bariatric Patients in Singapore: A Safe and Cost-Effective Postoperative Care Model

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Introduction

The bariatric surgery recovery process usually requires hospitalisation, which contributes to the rise in bed demand and patient stress. HaH offers hospital-level acute care to patients in the comfort of their home. While HaH has been reported to be safe and effective among medical patients, its outcomes and cost-effectiveness remain unexplored among surgical patients.

Methods

A retrospective review was conducted to assess the clinical and cost outcomes of bariatric surgery patients admitted post-operatively to NUHS@Home, the HaH programme of National University Health System. The HaH data was compared to bariatric patients who were eligible but declined the service and thus received usual inpatient care.

Results

Between August 2023 and April 2025, 39 bariatric surgery patients were enrolled in HaH while 36 patients opted for usual inpatient care. The mean age of the HaH cohort was 39 years. There were 67% females in HaH compared to 61% in the inpatient care group. HaH patients had a lower 30-day readmission rate (2.56% vs 5.55%) when compared to inpatient care. The length of stay in the HaH group was 1 day longer (3 days vs 2 days). No major post operative morbidity was recorded. HaH had a lower average gross hospitalisation bill (\$18,280.84 vs \$19,681.93). In total, HaH had created 90 inpatient bed-days capacity.

Discussion

Our findings suggest that NUHS@Home is a practical alternative to traditional inpatient care for selected bariatric surgery patients. Despite a slightly longer average length of stay (3 vs 2 days), patients managed at home had a lower 30-day readmission rate (2.56% vs 5.55%). HaH also generated cost savings, with a lower average hospitalisation bill (\$18,280.84 vs \$19,681.93), and freed up 90 inpatient bed-days—helping to alleviate pressure on hospital resources. One patient, transferred home on postoperative day 1 (POD 1), later developed sudden shortness of breath on POD 3, was readmitted, and passed away on POD 23 from complications related to a sleeve gastrectomy leak. The two groups had similar demographics, supporting reliable comparison, though voluntary enrolment may have introduced selection bias. Findings support the feasibility of expanding hospital-at-home models to surgical patients, but further research is needed on long-term outcomes, patient satisfaction, and broader scalability.

Table 1. Participant characteristics (mean ± SD / n (%))

	Usual care (n=36)	Home care (n=39)	p value
Age, mean ± SD	40.3 ± 11.5	37.6 ± 8.88	0.262
Sex, n (%)			0.167
- Male	14 (38.9%)	13 (33.3%)	
- Female	22 (61.1%)	26 (66.7%)	

Table 1. Participant characteristics (mean ± SD / n (%))

	Usual care (N=36)	Home care (N=39)	p value
Procedure, n (%)			0.456
- Sleeve	9 (25%)	12 (30.8%)	
- OAGB	22 (61.1%)	26 (66.7%)	
- RYGB	3 (8.3%)	1 (2.6%)	
- Sleeve PJB	1 (2.8%)	0	
- Conversion	1 (2.8%)	0	
Pre-operative BMI, mean ± SD	43.2 ± 7.54	43.7 ± 8.42	0.806
Comorbidities, n (%)			
- Diabetes	12 (33.3%)	10 (25.6%)	0.456
- Hypertension	14 (38.9%)	11 (28.2%)	0.327
- Hyperlipidaemia	15 (41.7%)	10 (25.6%)	0.141
- Thyroid Disorder	0	2 (5.1%)	0.168
- Obstructive sleep apnea	3 (8.3%)	6 (15.4%)	0.348
- Polycystic ovary syndrome	0	0	
- Chronic kidney disease	1 (2.8%)	1 (2.6%)	0.954
- Ischemic heart disease	3 (8.3%)	0	0.066
- Asthma	11 (30.6%)	6 (15.4%)	0.117
- Gout	2 (5.6%)	2 (5.1%)	0.934
- Osteoarthritis	2 (5.6%)	2 (5.1%)	0.934
- Gastroesophageal reflux disease	2 (5.6%)	2 (5.1%)	0.934
Total number of comorbidities, mean ± SD	1.81 ± 1.56	1.33 ± 1.28	0.156

Table 2. Healthcare utilization and cost (mean ± SD / n (%))

	Usual care (N=36)	Home care (N=39)	p value
Length of stay (LOS), mean ± SD	2.11 ± 0.747	3.41 ± 0.637	<0.001
30-day readmission, n (%)	2 (5.6%)	1 (2.6%)	0.509
30-day ED attendance, n (%)	5 (13.9%)	3 (7.7%)	0.385
Gross Hospitalisation Bill (\$), mean ± SD	18,743.35 ± 2234	18,944.25 ± 2748	0.042

Conclusion

HaH is a safe and cost-effective care model for bariatric patients, delivering hospital-level support in the comfort of home. As demand for metabolic surgery grows, HaH offers a scalable, patient-centred approach which aligns with Singapore's healthcare transformation goals.