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

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Aim

A retrospective review was conducted to assess the clinical and cost outcomes of metabolic bariatric surgery (MBS) patients admitted post-operatively to NUHS@Home, the Hospitalisation at Home (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.

Background

The MBS 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.

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%)	

	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	19.580 ± 2,234	18,375 ± 2,748	**0.042**

Discussion

Between August 2023 and April 2025, 39 MBS patients were enrolled in HaH while 36 patients opted for usual inpatient care. The mean age of the HaH cohort was 38 years. There were 67% females in HaH compared to 61% in the inpatient care group. HaH patients had a lower 30-day readmission rate (2.6% vs 5.6%) 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 ($18,375 vs $19,580). In total, HaH had created 90 inpatient bed-days capacity.

Our findings suggest that NUHS@Home is a practical alternative to traditional inpatient care for selected MBS patients. Despite a slightly longer average length of stay (3 vs 2 days), patients managed at home had a lower 30-day readmission rate (2.6% vs 5.6%). HaH also generated cost savings, with a lower average hospitalisation bill ($18,375 vs $19,580), 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.

Conclusion

HaH is a safe and cost-effective care model for MBS 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.