

## Operational Feasibility of Short Stay Surgical Unit in A Tertiary Care Teaching Hospital in South India

Richa Aggarwal<sup>1</sup>, Rajesh Kamath<sup>2\*</sup>, Brayal D'Souza<sup>3</sup>, Arun Mavaji<sup>4</sup>, Sagarika Kamath<sup>5</sup>

1. Postgraduate trainer, Master in hospital administration program, Prasanna school of Public health, Manipal University.
2. General practitioner, First Health Medical Centre, 77-79 Hallam road, Hampton park, Victoria-3976, Australia.
3. Prasanna School of Public Health, Manipal University, Karnataka – 576104.
4. Hospital administrator. M S Ramaiah hospital, Bangalore, Karnataka.
5. School of Management, Manipal University, Karnataka – 576104.

### Abstract

The short stay unit (SSU) is a ward providing targeted care for patients requiring brief hospitalization and who are dischargeable as soon as their clinical condition is resolved. Therefore, SSU is an alternative to the ordinary ward (OW) for the treatment of select patients.<sup>1</sup> Short – stay surgery enhances the opportunity for social support from the family. The recovery of the patient in his/her own family environment results in better psychological adjustment as a result of enhanced patient comfort, control, independence, and better interaction with family members. Short - stay surgery reduces the quantum of medications prescribed and also aids in judicious utilization of the doctor's time. A checklist with the list of surgeries performed in the Urology department in the tertiary care teaching hospital was given to Surgeons and Anesthetists of the Urology department. They were asked to select the surgeries for short- stay. The common surgeries selected were included in the study. After obtaining the list of short stay surgeries, the existing Average Length of Stay (ALOS) was calculated for patients who underwent those selected surgeries from January 2014 to December 2014. Convenience sampling was the technique used. The selected twenty procedures accounted for fifty four percent of the total bed occupancy of the Urology department over one year. The bed occupancy rate of urology wards by the patients of the selected procedures in the study setting was about 50%. The urology ward has a bed occupancy of eighty five percent. There is a waiting list of patients. A short stay surgical unit would reduce the length of stay of patients. The existing average length of stay for the selected procedures ranged from 2.2 days to 13 days. Three hundred procedures were performed in four Urology operation theatres. The Urology operation theatre utilization rate ranged from 65% - 75%. By the implementation of the short stay surgical unit, the utilization of the Urology operation theatre in the study setting can be increased to 80%. The Bed turnover rate was approximately 74 patients per bed per year. 6 patients more can be catered to per bed every year, keeping other factors constant.

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### Introduction

The short stay unit (SSU) is a ward providing targeted care for patients requiring brief hospitalization and who are dischargeable as soon as their clinical condition is resolved.

#### *\*Corresponding author:*

Dr. Rajesh Kamath, Assistant Professor,  
Room no.12, Second floor, Old Tapmi building,  
Prasanna School of Public Health, Manipal University,  
Karnataka - 576104  
E-mail : rajeshkamath82@gmail.com

Therefore, SSU is an alternative to the ordinary ward (OW) for the treatment of select patients.<sup>1</sup> Short – stay surgery enhances the opportunity for social support from the family. The recovery of the patient in his/her own family environment results in better psychological adjustment as a result of enhanced patient comfort, control, independence, and better interaction with family members. Short - stay surgery reduces the quantum of medications prescribed and also aids in judicious utilization of the doctor's time.

The backbone for short stay surgical procedures are: Advanced managed care & health maintenance organizations, precision –

based surgical instruments, less invasive surgical techniques, availability of a team approach to preparing a patient for surgery and performing it, and a desire to reduce healthcare costs.

Escalating demand may lead to phases of insufficient capacity. Lack of capacity in specialty or super – speciality specific surgical wards may result in sub- optimal treatment and thus leading to extended lengths of stay for surgical patients. Available capacity in surgical wards may be occupied by medical (non-surgical) patients - for example - Pre – mature admissions, patient admitted for diagnostic procedures and/or treatment that could also be done on an OPD basis. This reduces the access to beds for surgical patients. The ultimate outcome is prolonged waiting time for surgeries for patients. Also, patients staying for a prolonged duration utilize a considerable proportion of inpatient hospital resources - an inappropriate utilization of acute care resources.

Short Stay Units (SSU) can provide targeted care for patients requiring brief hospitalization, thereby benefiting the hospital, the staff, the patients and the community. It shortens the hospital waiting lists, reduces costs and allows efficient use of resources including operating theatre time and facilities. By moving work to a self - contained day unit, in-patient beds can be released for more major surgical cases.

High surgical bed occupancy levels often result in heightened staff stress, frequent surgical cancellations and long surgical wait times. This congestion is in part attributable to surgical scheduling practices which often focus on the efficient use of operating rooms but ignore resulting downstream bed utilization. Damiani et al concluded that use of SSUs could reduce patient's length of stay in hospitals and risk of hospital acquired infections and thus increased patient satisfaction and efficient use of hospital beds.<sup>1</sup>

The earliest reference for day care surgery dates back to the beginning of the 19th century: James Nicoll, a Glasgow surgeon performed almost 9000 outpatient surgeries on children in 1903. In 1912, Ralphwaters from Iowa, USA described "The Down Town Anesthesia Clinic", where he gave anesthesia for minor outpatient surgery. A prototype of the modern freestanding center for minor surgeries and dental cases was established by Waters R.M. in 1916<sup>2</sup>. Eric Farquharson in 1955 further popularized day

surgery by reporting 485 patients successfully operated under local anesthesia in Edinburgh and demonstrated uplifted patients' morale with all round accelerated recovery. The formal development of ambulatory anesthesia occurred with the establishment of the "Society for Ambulatory Anesthesia" (SAMBA) in 1943. Surgical intervention is evolving and booming, giving a variety of operative options to the surgeon as well as to the patient.

## Material and Methods

**Study Design.** Quantitative and Qualitative cross sectional study.

**Study Area.** Study was conducted in the Urology department of a tertiary care teaching hospital.

**Study Duration.** 1 Year (January 2014 to December 2014)

A checklist with the list of surgeries performed in the Urology department in the tertiary care teaching hospital was given to Surgeons and Anesthetists of the Urology department. They were asked to select the surgeries for short- stay. The common surgeries selected were included in the study. After obtaining the list of short stay surgeries, the existing Average Length of Stay (ALOS) was calculated for patients who underwent those selected surgeries from January 2014 to December 2014. Convenience sampling was the technique used.

### Formulae used for calculation:

Average length of stay = $\frac{\text{Number of inpatient days care (excluding healthy newborn) during the year}}{\text{Total number of discharges and deaths}}$
Bed Occupancy Rate = $\frac{\text{Average daily census} \times 100}{\text{Bed complement}}$
Bed turnover rate = $\frac{\text{Total number of patients discharged (including deaths)}}{\text{Bed complement}}$
OT utilization rate = $\frac{\text{Utilization time} \times 100}{\text{Available hours}}$
Available hours = OT hours per day x Number of days in a given period
Utilization time provided by OT staff includes cleaning time.

Bed occupancy was calculated for the patients who underwent the selected surgeries from January 2014 to December 2014. For the

calculation of bed occupancy, the whole population of patients who underwent the selected surgeries was taken into consideration. The information regarding the total number of beds present in the Urology wards was obtained from the Admissions department of the hospital. The bed turnover rate was calculated for the patients who underwent the selected surgeries. Information regarding the total number of patients who underwent the selected surgeries was gathered from reviewing records in the medical records department. Information regarding the Urology Operation theatre utilization was also obtained from the Medical Records department.

## Results

Name Of The Surgery	Average Length Of Stay (In Days)
Ureteroscopy	2.2
Cystoscopy	3.4
Cystoscopy & BU	3.6
Percutaneous Nephrolithotomy Needle (PCN), Percutaneous Nephrolithotomy (PCNL)	5.8
Varicocelelectomy	3
Hydrocelelectomy	3.4
Orchidectomy (Unilateral)	3
Orchidectomy (Bilateral)	3
Cystolitholapaxy	1.6
External Urethrotomy	3.4
Transurethral Resection of Bladder Tumors (TURBT)	3.8

**Table 1.** The surgeries which were selected for Short stay surgical unit by Urology surgeons and Anaesthetists are as follows. Also mentioned is the Average length of stay.

## Discussions

The selected twenty procedures accounted for fifty four percent of the total bed occupancy of the Urology department over one year. The bed occupancy rate of urology wards by the patients

of the selected procedures in the study setting was about 50%. The urology ward has a bed occupancy of eighty five percent. There is a waiting list of patients. A short stay surgical unit would reduce the length of stay of patients. The existing average length of stay for the selected procedures ranged from 2.2 days to 13 days. Three hundred procedures were performed in four Urology operation theatres. The Urology operation theatre utilization rate ranged from 65% - 75%. By the implementation of the short stay surgical unit, the utilization of the Urology operation theatre in the study setting can be increased to 80%. The Bed turnover rate was approximately 74 patients per bed per year. 6 patients more can be catered to per bed every year, keeping other factors constant.

The average revenue per patient per day drops with increasing length of stay of patient in the hospital. This is more so when occupancy rates are high with waiting lists. In in-depth interviews with the Urology surgeons and anesthetists of the study setting, no substantial additional requirements were made by them with respect to short stay surgical units. Therefore, the implementation of short- stay surgical unit in Urology department in the study setting is feasible as per the observations and analysis done during the present research conducted for one year.

Abenhaim et al described the evolution, structure, process & pitfalls of their hospitalist – run Medical Short Stay Unit (MSSU). They retrospectively identified and compared the data of all patients discharged from MSSU and Clinical Teaching Units (CTUs) for one year. The results showed a bed occupancy of 96.1 patients/bed per year in MSSU & 23.1 patients/bed per year in CTU. Median length of stay observed was 2 days in MSSU & 9 days in CTU. The rate of re-admission was observed as 9.6% in MSSU & 13.9% in CTU within thirty days of discharge.<sup>3</sup> Alkorashi et al identified acceptable one-day surgeries for patients admitted in the Urology department.<sup>4</sup> Wig came up with the conclusion that Day- surgery is a cost – effective, quality approach to surgery that has spread wide in recent years. Its popularity can be attributed to the development of pre- anesthesia clinics, use of newer anesthetics, anti-emetics and analgesics and better monitoring in pre-operative period.<sup>5</sup> Bapat et al, in a public hospital setting, showed that day care surgery has much

lower average costs than equivalent inpatient surgery.<sup>6</sup> Marcos et al observed that SSUs in Spain provided effective clinical care and reduced the overall length of stay in the whole hospital/departments where SSUs were created.<sup>7</sup>

Okafor et al assessed patients for mobility, self-care, usual activities, pain or discomfort, and anxiety and depression within 24 hours of discharge post Urethroplasty. Patients were offered to be sent home immediately or to stay overnight after being operated. Both short- stay (90%) and outpatient (86%) cohorts felt that they were discharged on time. It was concluded that the discharge timing was appropriate and that the health-related quality of life was only minimally affected.<sup>8</sup> Epelde et al observed that SSUs made it possible in certain groups of patients to reduce the period of stay and maintain efficiency, showing no increase in emergency readmissions or mortality and concluded that SSUs can be an instrument to reduce the cost of the health process in a certain group of pathologies.<sup>9</sup> Montes et al observed that mean stay was significantly lower in SSUs as compared to the rest of the hospital (year 2003, SSU 3.2 days, rest of the hospital 10.2 days; year 2007, SSU 3.3 days, rest of the hospital 8.6 days). They concluded that the SSU handled its cases with greater agility than other conventional hospitalization services.<sup>10</sup>

Villalta et al observed that the rates of inappropriate hospital admissions and stays were significantly lower in the SSU with respect to their control group and concluded that the SSU had the capacity to minimize the number and causes of inappropriate stays.<sup>11</sup> Vasquez et al evaluated the hospital stay, morbidity, and patients' compliance for short stay inguinal hernia repair through retrospective record review of 669 patients. The anesthesia was loco-regional in 74% of patients and general or epidural in the remaining 26%. 85% of short stay patients were satisfied with the surgical procedure. The mean hospital stay was 1.2 days.

## Conclusions

It was concluded that short stay in inguinal hernia repair is safe, effective, and widely accepted by patients.<sup>12</sup>

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