



Length of Stay of Orthopaedic Inpatients at a Teaching Hospital in Eastern Part of Nepal

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ABSTRACT

Introduction: This study aimed to analyze the average length of stay of all inpatients in the department of Orthopaedics and to compare the variations in hospital stay between age, gender, traumatic and non-traumatic co-morbidities and modality of payment.

Methods: This hospital based retrospective descriptive epidemiological study was based on patients discharged from a tertiary level health care center of eastern Nepal. Registry data of 1 year was used to calculate length of stay and analyze the variations.

Results: Average length of stay was 10.5 days. It was 10.7 days for males and 10.1 days for females. It was 10.12 days for patients paying themselves for their treatment whereas 14.98 days for patients receiving reimbursement (third party payment).

Conclusions: Average length of stay was more in elderly and patients of trauma (longest in pelvis injury). It was 1.5 times longer for patients receiving reimbursement for treatment.

Keywords: *length of stay; non-traumatic co-morbidities; trauma; third party payment.*

INTRODUCTION

Average length of stay (LOS) refers to the average number of days patients spend in the hospital. It is generally measured by dividing the total number of days stayed by all inpatients during a year by the number of admissions or discharges. Day cases are excluded.¹ Average LOS is often used as an indicator of efficiency and is often used for health planning purposes. All other things being equal, a shorter stay will reduce the cost per discharge. Too short a length of stay could also cause adverse effects on health outcomes, or reduce the comfort and recovery of the patient. If this leads to a greater readmission rate, costs per episode of

illness may fall only slightly, or even rise.¹ However, prolonged LOS has important consequences in terms of costs and outcome. But detailed information on LOS is lacking yet.² There is current belief that the type of reimbursement system (self payment vs third party payment of bills) or health insurance plan plays a more significant role in the patient LOS in hospitals.³ In absence of local data LOS of inpatients, we have undertaken this study to analyze the average LOS of orthopaedic inpatients in Nobel Medical College Teaching Hospital,

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Biratnagar and to compare the variations in hospital stay between age, gender, traumatic injuries, non-traumas and modality of payment.

METHODS

After ethical approval from institutional review committee, this hospital based retrospective descriptive epidemiological study was conducted. This study was based on patients discharged between May 2014 to May 2015 from department of Orthopedic at Nobel Medical College Teaching Hospital, a tertiary level health care center located in eastern part of Nepal. Patients file were retrieved from the medical record section and demographic data, gender, admission and discharge dates, diagnosis and modality of payment were recorded. Data obtained were analyzed in Microsoft Excel. Cases with incomplete data were excluded to prevent the confounding of the result. Length of stay were calculated by using formula "Average LOS (in days) = (Total discharge days/Total discharges)".³Average differences in LOS were analyzed for gender, traumatic injury, parts injured, and various co-morbidities. "INSTAT3 software" was used for analysis. Variations in average LOS were compared for the above mentioned parameters and also for patients paying for their own treatment and those whose treatment cost was borne by third party.

RESULTS

Total discharges in allocated study period were 1107. After analysis of completeness of above mentioned parameters in registry data, only 712 discharges were included in this study for further analysis.

	Trauma	Non-trauma	Total
Male	355 (53%)	90 (13%)	465 (65%)
Female	180 (25%)	67 (9%)	247 (35%)
Total	555 (78%)	157 (22%)	712 (100%)

In terms of diagnosis, 555(78%) had some kind of "trauma" and rest of 157(22%) were "non-traumatic". Amongst trauma cases, 228(41.1%) had upper limb injury, 272(49.0%) had lower limb injury, 33(5.9%) had spine injury, 7(1.3%) had clavicle injury, 5(0.9%) had pelvis injury, 1(0.2%) had soft tissue injury and 9(1.6%) cases were of multiple trauma. Amongst non-traumatic cases, 94(59.9%) had infection, 34(21.6%) had tumor and rest of 29(18.5%) were categorized as others.

Regarding payment of hospital bills, 631(88.6 %) paid

the bills themselves whereas in case of 81(11.4%) the bills were paid by third party. Amongst third party payments, 79(97.5%) cases were of trauma only.

Overall average LOS was 10.5 days. Variations in LOS were observed between age, gender, traumatic and non-traumatic co-morbidities.

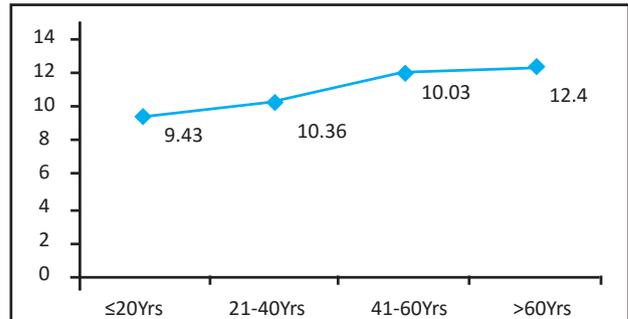


Figure 1. Increase in LOS (in days) with increasing age.

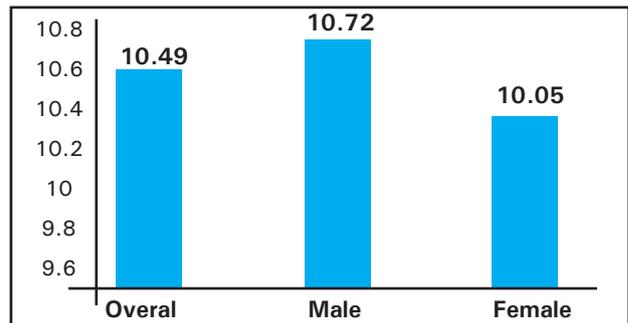


Figure 2. Average LOS (in days) among gender

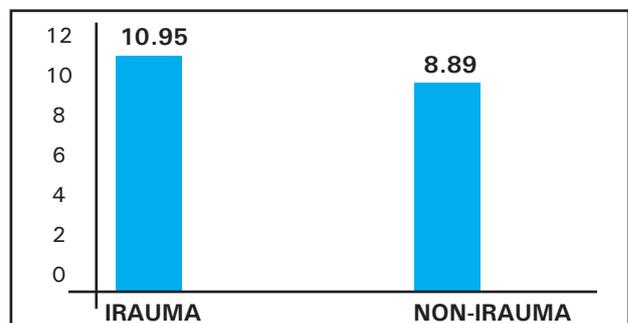


Figure 3. Average LOS (in days) among trauma and non-trauma

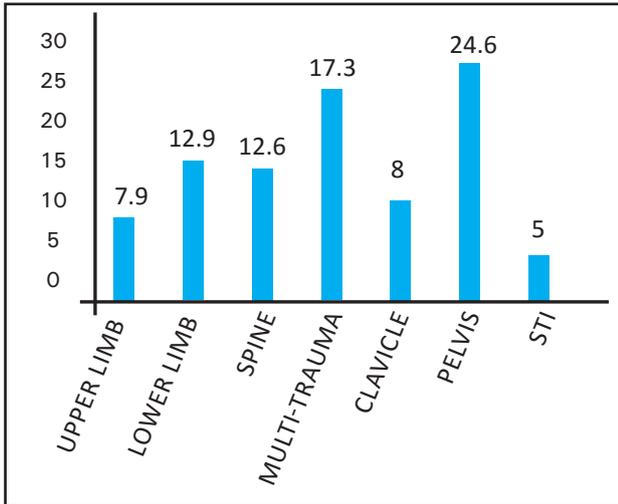


Figure 5. Average LOS (in days) amongst trauma

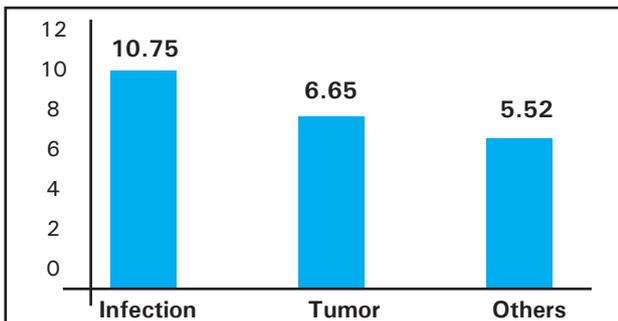


Figure 6. Average LOS (in days) amongst non-traumas

Average LOS also varied between patients paying themselves and those receiving reimbursement (third party payment) for their treatment.



Figure 7. Average LOS (in days) as per modality of payment

DISCUSSION

The findings of this study showed the average LOS of Orthopaedic inpatients at Nobel Medical College

Teaching Hospital to be 10.5 days. This study also showed longer LOS with increasing age of patients and longest in elderly patients of > 60 years age group. Comparing LOS between genders, it was nearly equal in male (10.7 days) and female (10.1 days) patients which nearly coincided with overall average LOS. The OECD Health Data 2011 shows that average LOS in hospitals for all causes is 7.2 days. It is 18.5 days in Japan, 7.7 days in Canada, 8.6 days in China and 4.9 days in the USA.¹

In our study average LOS was 11 days for patients with trauma. Moore et al shows the mean index and total LOS to be 8.6 and 9.4 days following admissions for traumatic injuries in Canada.²

In our study average LOS was longer in patients with trauma in comparison to non-trauma patients. Amongst trauma patients, average LOS was longest in pelvis injury. Multiple trauma, lower limb injury and spine injury were next in order respectively. Amongst non-trauma patients, average LOS was longest in patients with infection. Relevant literature couldn't be found for comparison.

Our study showed average LOS of 9.92 days in patients paying themselves for their treatment whereas it was 14.97 days for patients receiving reimbursement (third party payment) for their treatment. Relevant literature couldn't be found for comparison.

Our study also showed that amongst patients receiving reimbursement (third party payment) for their treatment, 97.5 % (79) were cases of trauma and only 2.5 % (2) cases were of non-trauma. Trauma cases received treatment cost from accident party whereas both non-trauma cases had health insurance and the insurance company paid for them.

Our study has some limitations. First, results may not be generalized to other settings because the study was performed in only one tertiary care teaching hospital. Second, the time duration of registry survey is only of one year and patient number is only 712. Lastly, this study does not assess the impact of strategy in terms of resource utilization, a particularly relevant issue in the current global economic situation.

CONCLUSIONS

Average LOS increased with increasing age of patients. LOS was nearly equal in male and female patients and it nearly coincided with overall average LOS. Average LOS was prolonged in patients with trauma in comparison to patients with non-trauma. Among trauma patients, the longest LOS were in patients with pelvic injury and multiple-trauma. In non-trauma cases, patients with

infection had the longest LOS. LOS was also affected by affordability of the cost of treatment and the LOS was 1.5 times longer in patients receiving reimbursement for

treatment. Amongst patients receiving reimbursement high majority of 97.5 % were cases of trauma only. So this foregoing study may provide an evidence based approach in planning and management of inpatients of orthopaedics and trauma.

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