



ORIGINAL RESEARCH ARTICLE

EMERGENCY DEPARTMENT LENGTH OF STAY AND DISPOSAL OF PATIENTS IN CHITWAN MEDICAL COLLEGE, NEPAL

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ABSTRACT

Background: Measuring patients Length of Stay (LOS) in the emergency Department (ED) is one of the assessments of quality indicators in terms of clinical, managerial and public satisfaction prospective. Waiting time standard is defined and its impact is analyzed in many hospitals especially in developed countries. Policy of emergency operations to reduce length of stay helps to manage overcrowding, spares time to treat critical patient and minimize preventable death. The study was done to assess length of stay and disposal of patients visiting emergency department in Chitwan Medical College.

Methods: This was a retrospective study conducted from 01/10/2018 to 30/09/2019 at Chitwan Medical college, Nepal. Patients electronic records were retrieved from medical record section of all patients visiting to emergency department. Ethical approval was obtained from ethical review committee.

Results: Medial Length of Stay (LOS) was 3.84 hours (Interquartile range 0.4 hours to 84 hours) 54.54% discharged, 40.83% admitted from ED.

Conclusion: Median Length of Stay (LOS) in the Emergency Department (ED) was 3.84 hours which is satisfactory as compared to similar studies. Majority of patients discharged after treatment from ED.



INTRODUCTION

To tackle heavy patients crowding, the United Kingdom implemented the '4-hour rule' demanding that 98% of all patients must be seen and discharged or admitted within 4 h of their arrival in the emergency department from the year 2004.¹ Such timeframe encouraged adopting a standard waiting time policy to other countries in their National Health policy to gain improved access to emergency services and subsequent care on time. The six hours' target in New Zealand is associated with reduced mortality and greater efficiency of emergency performance.² Strategy to enhance clearing emergency departments, National Emergency Access Target (NEAT) was introduced in Australia to reduce unintended consequences.³ Studies have revealed that no single cause is associated for prolonged length of stay at emergency department.⁴ Debate and discussions are going on about the definitive waiting time policy as many hospitals are unable to achieve the target set by NHS trust in UK to revise the policy.⁵ The organizational factors may influence the length of stay at emergency department apart from the external factors.⁶ Conceptual framework on the possible delays in the ED process has been outlined by input, throughput and output where the internal and external factors

has been identified to be responsible emergency stay.⁷ Currently time sensitive high acuity illness like myocardial infraction, stroke and sepsis protocols follow shorter management outline than four-hour protocol one of the example is one hour bundle of septic shock management in ED recommended by survival from sepsis campaign.⁸ Many developing countries like Nepal have no definitive waiting time national standard but trying to follow international practices feasible in the local context even though clinical and managerial protocols are still unclear in the organization itself. The study aimed to assess the Length of Stay (LOS) and disposal of patients visiting Emergency Department of Chitwan Medical College.

METHODS

This is a retrospective study carried out in the emergency department of Chitwan Medical College (CMC) from 01/10/2018 to 30/09/2019. All the patients reported to emergency department during this period were included in the study except the patients who arrived for delivery and the new baby admitted in hospital. Electronic medical records were obtained from medical record section. Two hundred ninety eight patient's records were not fulfilling the complete information and thus were omitted from the study. Total files

of 29057 patients were included in the study. The length of stay was calculated from the time of arrival to disposal in the emergency department. Six-hour time frame was regarded as a standard waiting time for this study following existing operating hospital's policy. Obtained data were tabulated and analyzed. Ethical approval was obtained from the institution review committee.

Length of stay (LOS): LOS defined as the time spent in the emergency department as seen on patient's electronic case record from the time of arrival to the time of disposal.

Children age group was considered in this study from birth to 14 years (Up to the age of 14, children are treated in pediatric Department) while 60 years and above was regarded as elderly patients

RESULTS

The total patients visiting emergency department during the study period were 29057. Out of them 14867 were male, 14189 were female and 1 patient was categorized as other (third gender). Median LOS in ED was 3.41 hours with a minimum of 0.4 hours and maximum of 87.21. Among patients visited to emergency 54.57% discharged from emergency and 40.83% admitted in hospital.

Table 1: Number of Patients visited according to age group

	Age group	No. of Patients	Percent
Children	0-14	4279	14.7
Adult	15-59	18491	63.6
Elderly	60 & above	6287	21.6
Total		29057	100.0

Table 2: Intervals of LOS of all Patients visiting to ED

Time interval (hours)	No. of Patients	Percent
<6	22387	77.0
6-12	4343	14.9
12-18	1599	5.5
18-24	542	1.9
>=24	186	0.6
Total	29057	100.0

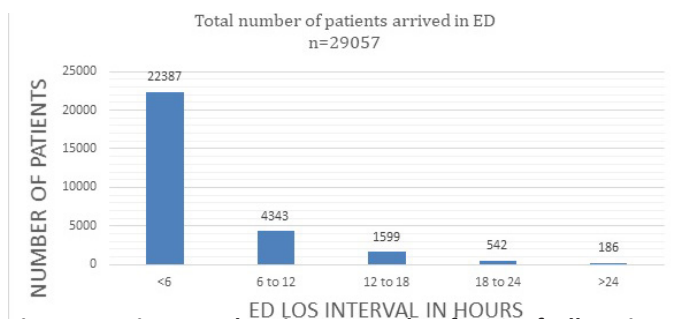


Figure 1: Diagram showing Intervals of LOS of all Patients visiting to ED

Table 3: Disposal of Patients from ED

Disposal	Patients	Percentage (%)
Admission	11865	40.83
Discharge Home	15856	54.57
Refer	327	1.13
LAMA	660	2.27
Death	72	0.25
Unspecified	277	0.95
Total	29057	100.00

Table 4: Comparison of critical & non-critical area of patients admitted

Category of Admitted Area	No. of Patients	Percent
Critical Care	4021	33.89
General Ward	7844	66.11
Total	11865	100.0

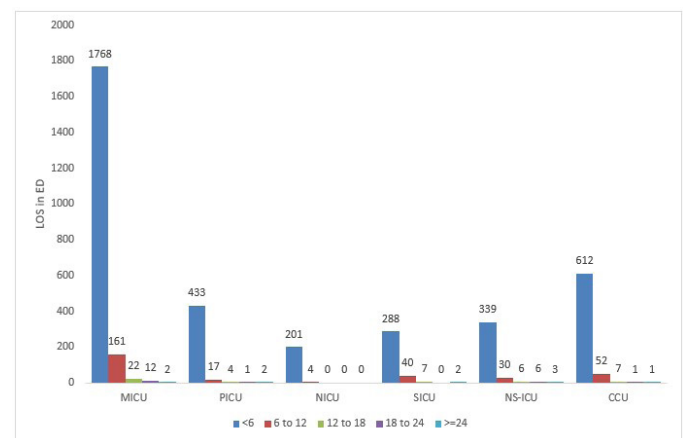


Figure 2: ED LOS in hours among patients Admitted to Critical Areas

DISCUSSION

The study shows the median length of stay (LOS) in emergency department to be 3.48 hours (with minimum of 0.4 hours and maximum of 84) which is quite satisfactory compared to the four policy of waiting time standard of NHS UK guideline. Such target of waiting time might lead to a positive impact on patient's outcome.9 for an instance, high performing hospitals reported a reduction in access block between 27% and 42% reduction in and improvement in the proportion of patients being seen within 4-hours between 16% and 28% in report published in New Zealand to their own performance helping to provide quality of care.10

The analysis also revealed 77% of patients leaving the ED within six hours compared to 95% observed in most of international guidelines on waiting time.

Table 4: Comparison of critical & non-critical area of patients admitted

		Category stay hour in emergency					Total
		<6	12-Jun	18-Dec	18-24	>=24	
MICU	Count	1768	161	22	12	2	1965
	% within Admitted area of patients	90.00%	8.20%	1.10%	0.60%	0.10%	100.00%
	% within Category stay hour in emergency	48.60%	53.00%	47.80%	60.00%	20.00%	48.90%
PICU	Count	433	17	4	1	2	457
	% within Admitted area of patients	94.70%	3.70%	0.90%	0.20%	0.40%	100.00%
	% within Category stay hour in emergency	11.90%	5.60%	8.70%	5.00%	20.00%	11.40%
NICU	Count	201	4	0	0	0	205
	% within Admitted area of patients	98.00%	2.00%	0.00%	0.00%	0.00%	100.00%
	% within Category stay hour in emergency	5.50%	1.30%	0.00%	0.00%	0.00%	5.10%
SICU	Count	288	40	7	0	2	337
	% within Admitted area of patients	85.50%	11.90%	2.10%	0.00%	0.60%	100.00%
	% within Category stay hour in emergency	7.90%	13.20%	15.20%	0.00%	20.00%	8.40%
NS-ICU	Count	339	30	6	6	3	384
	% within Admitted area of patients	88.30%	7.80%	1.60%	1.60%	0.80%	100.00%
	% within Category stay hour in emergency	9.30%	9.90%	13.00%	30.00%	30.00%	9.50%
CCU	Count	612	52	7	1	1	673
	% within Admitted area of patients	90.90%	7.70%	1.00%	0.10%	0.10%	100.00%
	% within Category stay hour in emergency	16.80%	17.10%	15.20%	5.00%	10.00%	16.70%
Total	Count	3641	304	46	20	10	4021
	% within Admitted area of patients	90.50%	7.60%	1.10%	0.50%	0.20%	100.00%
	% within Category stay hour in emergency	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

In this study, we could not assess the delays in transfer of admitted patients from ED to inpatient department after consultation and ‘boarding time’ which is regarded as one of the factors associated with the prolonged length of stay and mortality.¹¹ When the LOS was compared between the critical areas in the study population, neonatal disorder requiring admission had the shortest stay and surgical condition the longest. The reason behind it might be less time consumed in the diagnostic test for neonate and taking a longer time for preoperative diagnosis and preparation for surgical patients. Few of them staying more than six hours could be due to use of emergency observation for borderline illness or injuries.

The present study also analyzed the LOS ED to admitted patients to critical areas, most the patients were shifted to critical areas within 6 hours. An article published in North America revealed the median ED length of stay 7 (4–13) hours shorter LOS in the present review.

Medical conditions were the most common disorders requiring admission in hospital because of general teaching hospital having more resources and reputation as compared to other discipline.

Majority (54.57%) of patients were treated and discharged from emergency department with 40.83% being admitted

within the hospital. Some remaining however were referred to another hospital mostly due to unavailability of hospital beds (particularly in critical areas) or sometimes as per their wish to be shifted to another hospital due to social reasons.

Another mode of disposal revealed that 2.27% patients left emergency against doctor’s advice even after counseling and written explanation; probably due to unsatisfying services. We do not have exact data as to how many patients left ED without being seen by the doctors.

CONCLUSION

The median length of stay was 3.84 hours and 54.57% of these patients were discharged after treatment with admission rate of 40.83% from Emergency department.

CONFLICT OF INTEREST

None

FINANCIAL DISCLOSURE

None

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