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Prevalence And Outcomes of Emergency Revisits Within 72 Hours of Discharge At Tertiary Care Center, Nepal

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ABSTRACT

Background: Emergency revisits within 72 hours of discharge serve as key indicators of healthcare quality and resource utilization. While global studies have explored various revisit timeframes, Nepal lacks comprehensive data on short-term ED revisits. This study aimed to determine the prevalence, causes, and outcomes of emergency revisits within 72 hours at a tertiary care hospital in Nepal.

Methods: A retrospective cross-sectional study was conducted at Tribhuvan University Teaching Hospital (TUTH), Nepal, analyzing 40,524 emergency visits over one year. 100 cases of revisits within 72 hours were identified. Patient demographics, triage categories, vital signs, and revisit outcomes were analyzed using MS Excel and RStudio. Ethical approval was obtained from the Institutional Review Committee (IRC), TUTH.

Results: The prevalence of emergency revisits was 0.247%, with a male predominance (60%). The highest revisit frequency was observed in the 50–60 years (22%) and 20–30 years (20%) age groups. There was a nearly five-fold increment in the number of red triage management as compared to index hospitalization which supports the reason for worsening of clinical presentation upon revisit. Common discharge diagnoses were pain in the abdomen (14%), acute febrile illness (13%), CKD (11%), and AE-COPD (10%). The primary revisit reasons were worsening symptoms (51%), no improvement (34%), and new symptoms (15%). 54% of revisiting patients required admission.

Conclusion: This study highlights the clinical and resource burden of emergency revisits in Nepal. A significant proportion of revisits resulted in inpatient admission, emphasizing the need for improved discharge planning and follow-up strategies.

Keywords: *Emergency revisits, Triage severity, 72-hour revisit, Emergency department, Nepal.*

INTRODUCTION

Any unscheduled visit to the Emergency Department (ED) after recent discharge with similar or related symptoms is considered a revisit. Various studies have defined revisit time frames ranging from 24 to 72 hours [1]. Revisit rates, along with mortality, waiting time, and patients leaving without medical care, are used to assess healthcare quality [2]. Pediatric EDs in tertiary centers are often overcrowded due to early revisits, straining resources [3]. Privileged groups with insurance or medical concessions are more likely to revisit [4].

Emergency healthcare in Nepal remains under-resourced, with limited personnel, equipment, and no formal emergency medicine training even in major

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hospitals like TUTH [5]. Most services are disaster-centered—focused on pandemics, RTAs, and seasonal outbreaks[6,7].

Studies in Nepal found the highest revisit rates within 72 hours [8] but lacked assessment of vital signs or revisit outcomes. This study aims to analyze 72-hour ED revisits, focusing on patient vitals, triage severity, and clinical outcomes.

METHODS

This retrospective cross-sectional study was conducted by analyzing medical records between the time frame 2080-12-01 to 2081-12-01 at the emergency department, TUTH, Kathmandu Nepal. All the relevant details within the given timeframe were recorded, revisits of the same patient within 72 hours of discharge from the emergency department were segregated and further analysis were performed. All patient case reports within the defined time frame containing complete information, including index hospitalization details, revisit diagnosis, vital signs, treatment, and outcome were included in the study. Case reports with illegible handwriting or incomplete patient information were excluded. The primary objective of the study was to find the prevalence of emergency revisits are TUTH within 72 hours of discharge. Additionally, reasons of revisits along with vital signs and outcome were assessed during the study with the help of semi structured Performa. Any possible correlations between study variables were also analyzed.

Different patient related information including demographics variables such as age and gender, index hospitalization details (diagnosis and triage category) and revisit details (vitals, revisit reason, diagnosis and outcomes) were firstly extracted by using semi structured questionnaire then transferred to MS Excel to perform data cleaning as well as visualization. Further, measurement of central tendency and any possible correlation within the variables along with data visualization was performed by using RStudio.

Study was conducted by considering due ethical and professional standards after receiving an approval from institutional Review Committee (IRC), TUTH. Ref: 428(6-11)E2 081/082.

RESULT

During the study duration, a total of 40,524 ER visits were recorded, 100 revisits within 72 hours of index visit discharge indicating 0.247 % of revisit prevalence within one year time frame. There was male predominance amongst the revisits with 60 % figure whereas female accounted for 40 %. Age range of patients was from highest 86 years to lowest 10 years with maximum number ranging between 50 – 60 years (22%) followed by 20-30 years (20%) whereas least frequency was observed for age group of 80 – 90 years with figure of only four events.

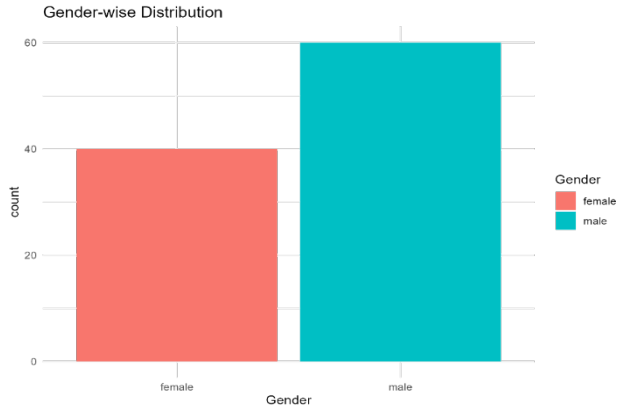

Figure 1: Gender wise distribution of revisit patient

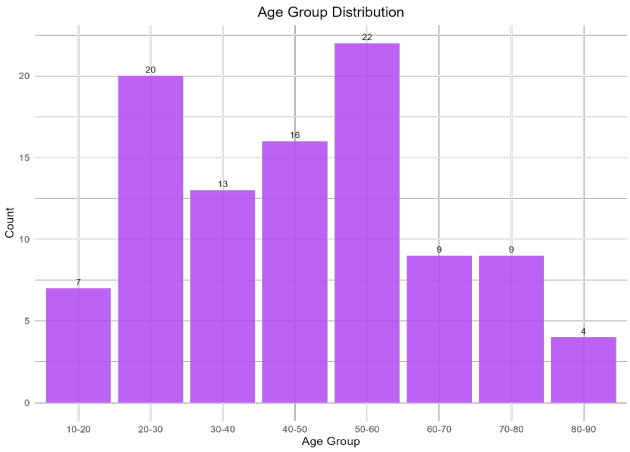

Figure 2: Age wise distribution of patients

Upon analyzing triage category of patients visited during index hospitalization as well as revisits, significant rise was noticed in red area from 5 to 24 between two hospital visits whereas cases managed under yellow and green were declined slightly. For yellow region, figure reached to 29 from 34 whereas it reduced to 47 in green area from 61 in the index hospitalization. (figure 3)

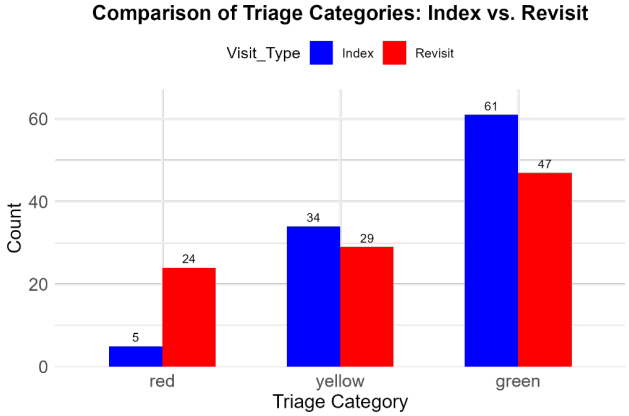

Figure3: comparison of triage management in two hospital visits

We have further categorized diagnosis of patient at index hospitalization. Maximum of diagnosis at discharge was pain abdomen with a total of 14 cases, followed by acute febrile illness (AFI) – 13, CKD (11), Acute exacerbation (AE) of COPD (10), Dengue fever (9), renal colic (6), headache and Urinary tract infection (UTI) with equal frequency of 5, Threatened abortion (5), AGE, RTA and epistaxis with equal frequency of 3 where as a total of 14% cases were categorized under others where there were only one or two frequency was observed.

Table 1: Distribution of Diagnosis during Index Hospitalization

S.N	Diagnosis	Frequency (n)	Percentage (%)
1	Pain Abdomen	14	14
2	Acute Febrile Illness (AFI)	13	13
3	Chronic Kidney Disease (CKD)	11	11
4	Acute Exacerbation of COPD (AE of COPD)	10	10
5	Dengue Fever	9	9
6	Renal Colic	6	6
7	Headache	5	5
8	Urinary Tract Infection (UTI)	5	5
9	Threatened Abortion	4	4
10	Acute Gastroenteritis (AGE)	3	3
11	Road Traffic Accidents (RTA)	3	3
12	Epistaxis	3	3
13	Others (cases with one or two frequencies only)	14	14
	Total	100	100

While delving into the causation of revisits, three major reasons were reported – no improvements in the initial symptoms, worsening of previous symptoms and appearance of additional symptoms. Each category represented 34, 51 and 15 cases respectively. (figure 4)

Table 2: Reasons for revisits

S. N.	Reason To Revisit	Frequency (n)	Percentage (%)
1	Symptoms got worse	51	51
2	Symptoms Did Not Get Better	34	34
3	Additional Symptoms	15	15

In this study, we made an attempt to record all the vitals of patients during the time of revisit in order to assess the seriousness of the disease condition. Blood pressure, respiratory rate (RR), Pulse rate (PR), Glasgow Coma Scale (GCS) and glucose, random blood sugar (GRBS) were measured. Mean blood pressure was calculated to be 122/74 Mm Hg, mean RR 21.74 per minute, mean PR 100 beats per minute, GCS 14.8 and mean GRBS 109.25.

Table 3: mean vital signs in revisiting patient

Vital Sign	Mean ± SD
BP_Systolic	121.70 ± 29.86
BP_Diastolic	73.25 ± 16.38
RR	21.74 ± 4.09
PR	99.86 ± 11.86
GCS	14.80 ± 0.84
GRBS	109.25 ± 34.86

According to Spearman's correlation test between GCS and RR, a slightly declined linear trend line suggest us not strong relationship between these variables with a correlation coefficient of -0.037. Patients with increased respiratory rates are not strongly correlated with reduced GCS scores. Most of the GCS scores are near 15 regardless of respiratory rate.

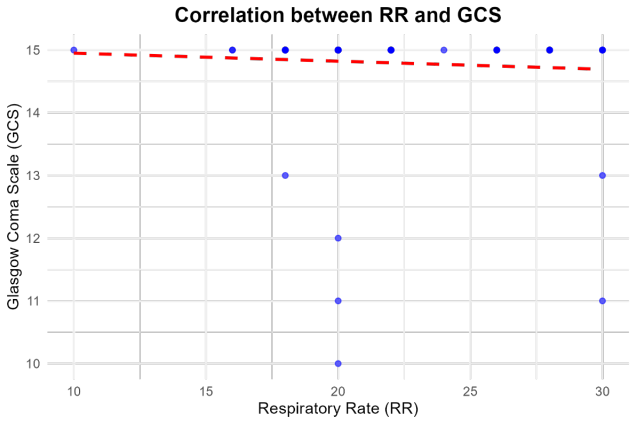

Figure 5: Spearman's correlation between RR and GCS

Amongst those 100 patients, 54% were admitted in hospital after initial management at emergency department whereas 44 % got discharged whereas death and leaving against medical advice (LAMA) cases were represented by single event each. Amongst those admitted patient, 28 were in medicine ward, 10 in surgical, 8 in Intensive care unit (ICU), three in gynecology, two in psychiatry as well as ENT and a single patient in ophthalmology ward.

Table 4: Outcome of Revisit Patients

Outcome	Number of Patients
Admission	54
Discharge	44
Death	1
Leaving Against Medical Advice (LAMA)	1

Outcome	Number of Patients
Department Wise Distribution of Admitted Cases	
Department	Number of Patients Admitted
Medicine	28
Surgery	10
ICU	8
Gynaecology	3
Psychiatry	2
ENT	2
Ophthalmology	1

DISCUSSION

This study highlights the prevalence, clinical characteristics, and outcomes of emergency department (ED) revisits within 72 hours. The revisit rate was 0.247%, significantly lower than reported in other study in similar settings by Maharjan et al. where 1.2 % prevalence was reported.(9) However, our study result was consistent with the findings of Ghimire et al. where revisit prevalence was observed to be 0.829%. Similarly, consistent prevalence percentage of 0.8% was reported from study conducted at southern India by Mathew et al. (2) According to a recent study finding in Singapore, there was 4.2 % of revisit prevalence over 12 years study duration, which is significantly higher than our observation – sufficiently large time frame might be attributed to such difference among the study results. (10)Our finding suggests an effective initial management in our study site but also indicates areas for improvement in discharge planning.

A male predominance (60%) was observed, with the highest revisit rates in the 50–60 years (22%) and 20–30 years (20%) age groups. This finding on increased revisit frequency in old age was also reported by Tankulpaninch et al. where major predictor of emergency revisit was age factor, specifically around 60 years. (1) In contrast to our study result, maximum number of revisit events were reported for age group above 60 yrs in Singapore. (10) A significant rise in red-category triage cases (5 to 24) upon revisit underscores the need for better risk assessment at discharge. The most common initial diagnoses were abdominal pain (14%), acute febrile illness (13%), and chronic kidney disease (11%). Revisit causes included persistent symptoms (34%), worsening conditions (51%), and new symptoms (15%). Our study finding on reason to revisit was consistent with Maharjan et al. where 68% of revisit events were due to symptoms not getting better.(9)

One of the most unique observations in our study was to analyze the vital sign showing a mean BP of 122/74 mmHg, RR of 21.74/min, PR of 100/min, and GCS of 14.8. majority of participant were reported with stable vitals at the time of revisits. GCS is predictor of patient consciousness and response ability to stimuli which is helpful in monitoring severity of illness.(11) For patients undergoing emergency surgery, relationship between GCS and RR is of great clinical importance, RR being considered as predictor of GCS. (12) The weak correlation between respiratory rate and GCS suggests that single-parameter monitoring may not reliably indicate clinical deterioration.

More than half (54%) of revisiting patients required admission, primarily to medicine (28 cases) and ICU (8 cases), while 44% were discharged. The findings suggest the need for enhanced discharge protocols, risk stratification, and outpatient follow-up to reduce revisits and improve patient outcomes.

There are few limitations in th study. 1) **Retrospective Design:** Since the study is based on historical patient records, there might be inherent biases due to incomplete or missing data, which could affect the accuracy of the findings. 2) **Small Sample Size and Time frame :** Since study was performed for a one year time frame with only 100 sample size, findings may not be generalizable to the larger context and trend may be different when large data from wider time frame is considered. 3) **Lack of Follow Ups** : Since only 72 hours time frame is considered for the study, long term patient related outcomes are missing. However, findings of this study lay foundations for more exploratory studies in the future.

CONCLUSION

This study suggests effective initial patient management but certain cases require further exploration. The potential demographic risk factor of male gender with elderly age group warrants further exploration with additional attention in the future. A significant rise in red triage category cases during revisits along with more than half of admission on revisit suggests strengthening of emergency care specially triage accuracy and discharge criteria. Further research is needed to develop predictive models to prevent avoidable revisits and improve overall emergency care efficiency.

Conflict of interest: None

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