



## Original Article

## A Retrospective Study To Assess The Two Year Trends of Patient Admission Cases And Outcome At P.T. Birta City Hospital and Research Center Pvt. Ltd.

Dr. Anil Kumar Basnet<sup>1</sup>, Dikshya Nepal<sup>1\*</sup>, Arisetty Radha Prasain<sup>1</sup>, Dr. Romi Budhathoki<sup>1</sup>,  
Rosan Prasain<sup>1</sup>, Barsha Subedi<sup>1</sup>, Preksha Rajbanshi<sup>1</sup>

<sup>1</sup>P.T. Birta City Hospital and Research Center Pvt. Ltd. Birtamode, Jhapa, Nepal

Corresponding Author: \* Dikshya Nepal

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Abstract	Manuscript Information
<p><b>Introduction:</b> Intensive Care Unit (ICU) is specialized unit focused to treat patients who are critically ill and require intensive monitoring from health care givers. The main objective of the study to assess two years trend in Intensive Care Unit in P.T Birta City Hospital and Research Center Pvt. Ltd. from 01-JAN-2021 to 01-JAN-2023</p> <p><b>Methods:</b> A retrospective study was done in medicine ICU of the hospital. Census of two years (2021-2023) admission cases were assessed through pre-structured questionnaire. Data was analyzed in terms of frequencies and percentage in SPSS version 23.</p> <p><b>Results:</b> The study displayed the pattern of hospital admissions to the medical ICU. 56% of all admitted cases were transferred out, and 9.8% of cases resulted in death. Cardiovascular system cases made up the majority of morbid cases (24.1%). Most of the patients, who were mostly in their 50s and 70s, spent an average of two days in the hospital. Another big public health concern was self-harm.</p> <p><b>Conclusions:</b> The overall trend showed increase in non- communicable disease, which is commonly leading cause to stay in ICU, majorly affecting cardiovascular system followed by respiratory system.</p>	<ul style="list-style-type: none"> <li>▪ ISSN No: 2583-7397</li> <li>▪ Received: 05-02-2023</li> <li>▪ Accepted: 02-03-2023</li> <li>▪ Published: 07-03-2024</li> <li>▪ IJCRM:3(2);2024:11-15</li> <li>▪ ©2024, All Rights Reserved</li> <li>▪ Plagiarism Checked: Yes</li> <li>▪ Peer Review Process: Yes</li> </ul> <p><b>How to Cite this Manuscript</b></p> <p>Dr. Anil Kumar Basnet, Dikshya Nepal, Arisetty Radha Prasain, Dr. Romi Budhathoki, Rosan Prasain, Barsha Subedi, Preksha Rajbanshi. A Retrospective Study To Assess The Two Year Trends of Patient Admission Cases And Outcome At P.T. Birta City Hospital and Research Center Pvt. Ltd. International Journal of Contemporary Research in Multidisciplinary. 2024; 3(2): 11-15.</p>

**Keyword:** Intensive care unit; Medicine; Trend of disease

### 1. Introduction

Despite continuing to be one of the world's lowest income countries, Nepal has improved its health care, over the last decades. Given the burden of disease, the prevalence of critical illness in developing country is disproportionately high. <sup>[1]</sup>

Intensive care is a continuum of care from various source of admission where patients requires a frequent assessment of vital signs, invasive hemodynamic monitoring, intravenous medication and fluid.<sup>[2]</sup> The aim of the study is to assess two-

year trends in Intensive Care Unit of P.T Birta City Hospital and Research Center Pvt. Ltd. From 01-JAN-2021 to 01-JAN-2023.

**2. Methods**

A descriptive cross-sectional study was conducted among total 500 admission cases of medicine Intensive Care Unit (ICU) of P.T. Birta City Hospital and Research Center Pvt. Ltd. The study assessed quantitative secondary data through census of hospital admission records of each individual cases registered in the ICU from 01- Jan-2021 to 01- Jan-2023. A pre-structured questionnaire was used to collect the data using secondary data of ICU register and report file. Validity was determined using content Validity formula  $(\frac{ne-N/2}{N/2})$  where ne="number of essentials" N="number of experts" The content validity index of the given questionnaire = 0.6 by consulting 5 expert. In addition, reliability was determined by using interrater reliability using percent agreement =52%. Data was analyzed using SPSS version

23 in terms of percentage and frequency to know the trends of the ICU admitted cases. Ethical approval was given by Nepal Health Research Council (ref. no 3715). Letter of approval for research conduction was taken from P.T. Birta City Hospital and Research Center Pvt. Ltd.

**3. Result**

500 patients were admitted in ICU during the study period. Out of the total, 238 (47.6%) were male and 262(52.4%) were female. The age of the patient admitting to the ICU were in between 10-90yrs age of which age group in between 51-70yrs (32.8%) accounted majority of ICU stay. People admitting in the ICU were from Jhapa district (35%), Illam district (21%), Panchar district (24%), Taplejung district (10%), Morang district (5%) and 5% from other district of Nepal.

**Table 1:** Descriptive analysis of Socio-demographic variable of patient admitted in Intensive Care Unit

Variable	Frequency	Percentage
<b>Age</b>		
10-30 yrs	93	18.6
31-50 yrs	133	26.6
51-70 yrs	164	32.8
71-90 yrs	107	21.4
90 and above	3	0.6
<b>Sex</b>		
Male	238	47.6
Female	262	52.4
<b>Marital Status</b>		
Single	38	7.6
Married	462	92.4

Regarding admission, majority of the patients 420(84%) were admitted through department of emergency.

In context to the ICU stay, the average length of stay was 0-2 days.

**Table 2:** Hospital admission source and period of stay

Variable	Frequency	Percentage
<b>Admission Source:</b>		
Emergency	420	84
Out-Patient Department	2	0.4
Inter-Department Transfer	78	15.6
<b>Length of ICU stay</b>		
0-2 days	281	56.2
3-5 days	183	36.6
6-8 days	25	5
8-10 days	9	1.8
Above 10 days	2	0.4

Out of 500 cases admitted to the ICU, 297(59.4%) were transferred to ward after successful management at ICU, 36(7.2%) were referred to higher center, 70 (14%) discontinued treatment. The total mortality was 49 accounting (9.8%) of the

total admission. Cardiovascular cases like MI and Heart failure were the major causes of mortality 12 (24%) closely followed by respiratory diseases like COPD, pneumonia 12(15.3%).

**Table 3:** Outcome of the cases in ICU

Patient Outcome	Frequency	Percentage
Transfer Out	297	59.4
Referral	36	7.2
Death	49	9.8
Leave against medical advice	70	14
Discharge on patient request	48	9.6

Figure 1: Trends of disease according to the system

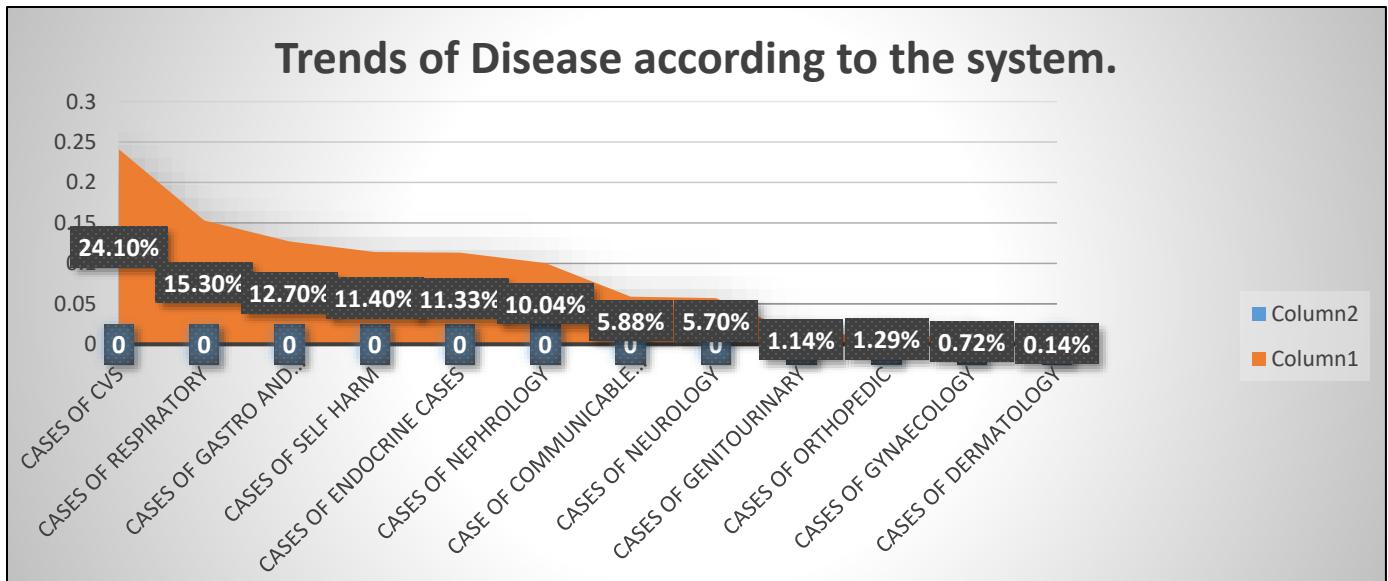


Table 4: Number and percentage of case admitted and mortality of cases in the ICU (2021-2023)

System Involvement	Total cases	Percentage	No. of mortality	Percentage of mortality
Cases of Cardiovascular System	168	24.1%	12	2.4%
Cases of Respiratory	107	15.3%	12	2.4%
Cases of Gastro and hepatic biliary	89	12.7%	6	1.2%
Cases of Self Harm	80	11.4%	2	0.4%
Cases of Endocrine Cases	79	11.33%	2	0.4%
Cases of Nephrology	70	10.04%	4	0.8%
Cases of Communicable Diseases/Sepsis	41	5.88%	6	1.2%
Cases of Neurology	40	5.7%	4	0.8%
Cases of Genitourinary	8	1.14%	1	0.2%
Cases of Orthopedic and surgical	9	1.29%		
Cases of Gynecology	5	0.717%		
Cases of Dermatology	1	0.14%		

Table four shows the trend of disease cases in the hospital showing the cases of cardiovascular, respiratory, gastro and hepato-biliary, self-harm, endocrine, nephrology, sepsis, neurology, genitourinary, orthopedic and surgical, gynecology and dermatology. There was high number of cases of cardiovascular disease (CVD) 168(24.1%) being admitted and among the cases of CVD 2.4% had mortality. The trend study also showed number of mortality of cases that were admitted in the hospital.

Figure 2: Trend of admission in ICU according to time (months)

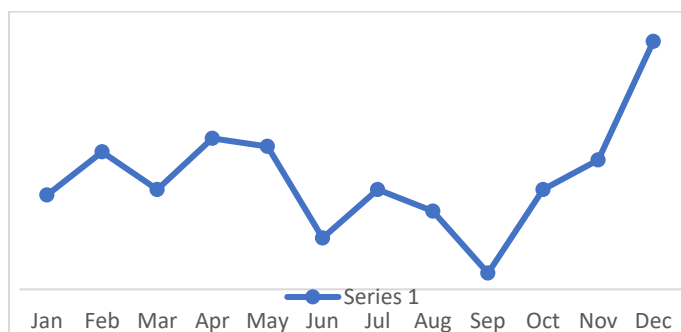


Figure 2 shows highest trend of admission of cases during December in two consecutive years (2021 to 2023) and lowest in the month of September. Table 5 shows the top five-morbidity condition of the cases admitted in the hospital. Morbidity due to hypertension were in greater number followed by type2 diabetes mellitus, chronic obstructive pulmonary disease, chronic liver disease, chronic kidney disease, coronary artery disease and so on.

Table 5: Top five morbidity cases admitted in the ICU

Morbidities	Frequency	Percentage
Hypertension	65	13
Type 2 Diabetes Mellitus	52	10.4
Chronic Obstructive Pulmonary Disease	46	9.2
Chronic Liver Disease	44	8.8
Chronic Kidney Disease	29	5.8
Coronary Artery Disease	22	4.4

**Discussion**

Intensive Care Unit is specialized unit focused to treat patients who are critically ill and require intensive monitoring from health care givers.<sup>3</sup> The purpose of intensive care unit is to improve the clinical outcome of acutely ill patient.<sup>4</sup>The study

revealed the descriptive exploratory findings regarding admission cases trends in Eastern region of Nepal. The ICU of the hospital had 500 patients during the period of 2021 to 2023. This ICU service is one of the active referral center of Birtamode serving to patients of Jhapa and neighboring district like Illam, Panchthar and Taplejung. More than half population were female (52%) in our setting where as similar studies in other tertiary hospitals of Nepal had male predominance (65%)<sup>5</sup> and (58.8%)<sup>6</sup>. The age group of 51 to 70 years old comprises the majority of hospitalized patients in this study with 164 (32.8%), followed by the age group of 31 to 50 years old with 133 (26.6%), and the age group of 90 years and above with 0.6%. A similar study showed majority of admitted patient in age group (45 to 60) with 222 (28.04%) and 60 above age group with 365 (46.08%) while least were 55 (6.94%) patients in (0 to 15) age group.<sup>5</sup> Another study in a developing country of west Africa showed most of the patients that were admitted in the Lagos university teaching hospital (LUTH) ICU belonged to the young and middle age group the active and productive segment of the general population accounting for 66.9% (433)<sup>7</sup>.

Our study showed mortality rate in (9.8%) of total ICU admitted cases similar to Scandinavian country (9.1%) and in contrast with Ethiopia (27%).<sup>8,9</sup> Also, a multinational study showed (9.3%) of mortality in ICU admitted cases in 2019 which is similar to our study.<sup>10</sup> Our findings had 297 (59.4%) discharge rate and 70 (14%) had leave against medical advice. A similar study showed that 141 (17.80%) of patient had mortality while 38 (4.80%) were taken home by their families against medical advice and 60 (7.58%) were referred to other centers.<sup>5</sup> Based on our records, 420 patients (84%) were hospitalized from emergency rooms, which accounted for the majority of admission sources. The remaining individuals came from inter department 78 (15.6%) and OPD 2 (0.4%). A study in tertiary hospital of Nepal showed 614 (77.52%) patient were admitted from Emergency, which was majority in term of admission source. Rest were from OPD 69 (8.7%) and Cath Lab 109 (13.7%).<sup>5</sup> Another similar study showed admission of patients were mainly from emergency operation theater (25%), routine operation theatre (23%), medicine ward (20%), emergency department (19%), surgical ward (4.3%) etc.<sup>6</sup> The months October to December showed higher admission rate than compared to other months in our study in contrast to another study of Nepal showed (March to June)<sup>5</sup>.

The common criteria for admission in intensive care units of least developed countries were found to be postsurgical treatment, infectious diseases, trauma, and per partum maternal or neonatal complications.<sup>11</sup> Our study showed non-communicable disease like cardiovascular diseases, type 2 diabetes mellitus, chronic kidney disease, chronic liver disease showed increasing trend in ICU. Cardiovascular disease with hypertension (24.1%) was the most common cause of the admission in our study followed by type 2 diabetes mellitus (10.4%), chronic obstructive pulmonary disease (9.2%) and chronic liver disease (8.8%). Likewise, cardiovascular disease 182 (36.1%) was common categorical admission diagnosis in one of the similar study in Ethiopia.<sup>8</sup> Another study in Nepal showed

respiratory disease, including chronic obstructive pulmonary disease and pneumonia (18.30%) as the most common reason for admission followed by myocardial infarction (14.52%), acute abdomen (10.22%), sepsis (9.2%).<sup>15</sup>

The tendency of suicidal intent was seen as matter of concern in our study i.e. About 80 cases within two years of tenure and majority of them were admitted after consumption of organophosphate compound. Similar study in Kathmandu medical teaching college has 67 poisoning cases majorly organophosphorus poisoning within one year period of time.<sup>12</sup> Another study in Nepal Medical College accounted 354 cases of various cases of poisoning with 5 years period of time.<sup>13</sup> Also 156 poisoning cases in Gandaki Medical College was seen within 2-year period.<sup>14</sup> The time, place, age group shows the descriptive inflow of the patient in the hospital. The study signifies the focus and concern should be given to those priority areas the prevalence of critically ill patients in least developed country is quite high in view of the eminent burden of disease. Despite of fundamental logistic and financial limitations, intensive care medicine has become a discipline of its own in most nations<sup>11</sup>. The information gathered can be used by other ICUs in the country to improve services and assist institutions in establishing new ICUs, and the findings are thought to add something valuable to the growing body of research comparing critical care in high- and low-income nations.<sup>15</sup> Evaluating the characteristics and outcomes of critically ill patients admitted to ICUs in low-income countries may help to determine the priorities and resources needed to improve critical care in resource-constrained areas of the world. In addition, reaching a balance between judicious utilization of a limited and high cost resource and providing optimal intensity of care is challenging.<sup>14</sup>

#### 4. Conclusion

The study gave the scenario of the disease pattern of eastern region of Nepal tracing a roadmap for hospital management team to have resource estimate according to time, person and place distribution. Majority of cases admitted in ICU were hypertension, type 2 diabetes mellitus, coronary obstructive pulmonary disease, chronic liver disease, chronic kidney disease and coronary artery disease. There was high rate of self-harm cases, which showed public health concern. The outcomes of admission regarding the availability of resources were comparable with other multidisciplinary ICU of similar setting.

#### 5. Conflict of Interest: No

#### 6. Funding: Funded by P.T. Birtacity Hospital and Research Center Pvt. Ltd.

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