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Research Article

**IMPROPER ADMISSION AND HOSPITALIZATION IN THE  
HOSPITALS OF MULTAN**<sup>1</sup>Dr. Saira Faryal Amjad, <sup>2</sup>Dr. Israr Saeed Ghuman, <sup>3</sup>Dr Hafsa Zafar<sup>1</sup>THQ hospital Noshehra Virkan<sup>2</sup>BHU Chak Bhatti<sup>3</sup>University of Health Sciences Lahore**Abstract:**

**Objective:** To evaluate the suitability of patients' admission and hospitalization in two main hospitals of Multan. **Methodology:** Appropriateness Evaluation Protocol. **Results:** AEP was used to check the suitability of the 258 admissions in 1732 patient days. The results revealed that 22.8% of admissions were inappropriate. Moreover, the hospital stay in case of improper admissions was considerably lesser than that of genuine admissions. Statistical findings showed a significant difference in relation to unsuitable admissions ( $p < 0.0001$ ). Almost 8.6% of patient days were not appropriate and were different in case of each hospital. The unsuitability of patient day is directly related to the length of the stay. The more the length of the stay, more is the unsuitable patient day. In most of the cases lengthy hospital stay were attributed to delays in discharge process. **Conclusions:** The study concluded that a huge percentage of hospital admissions and stays were improper and unsuitable. The contributing factors include the unnecessary delays in discharge process, extra paper work, lengthy procedures and lack of quality health services at grass root level.

**Keywords:** Appropriateness Evaluation Protocol (AEP), Inappropriate hospital stay, Inappropriate admission**Corresponding author:****Dr. Saira Faryal Amjad,**  
THQ hospital Noshehra Virkan

QR code



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## INTRODUCTION:

Hospital administrators and supervisors are closely concerned for the use of hospital beds. They are always thinking to devise a strategy to minimize the hospital expenditures. This is the major source of the expenditure incurred by the hospitals in most of the places around the world. The expenditure for Pakistan is estimated to be between 50% and 80%. A number of studies on the subject have reported that inpatient days and admissions are improper and unnecessary in certain circumstances. If this practice of inappropriate hospital admission is mitigated, it would surely increase the efficacy of the hospital services and output [1]. Furthermore, the deserving inpatients have not to wait for the admissions. This would ensure the optimum utilization of hospital resources and quality health care facilities to the most deserving hospitalized patients. In patients are exposed to Hospital Associated Infection (HAI). Inappropriate admissions and hospitalization increases the risk of HAI. By reducing the unsuitable and unnecessary hospitalization, we can overcome the hospital associated infections and can spare the resources for the most deserving critical patients [2].

Calculation of Inappropriate Patient Days (IPD) is the basis for determination of excessive hospital stay as suggested by different studies. An admission will be considered as an appropriate admission if there is no better choice available for the patient to be hospitalized with the high medical and technological healthcare facilities. The admission will be considered appropriate too, if a relatively lower technology is available. Appropriate hospital stay is the time spent by a patient during hospitalization and getting all active medical and nursing services which cannot be made available in OPD or day care. Appropriate stay is considered to be, effective, efficient and up to date system for patients' care as described by Dutch law on quality of care. On the other hand, the improper stay at hospital is not useful for the patients as well as for the hospital managers [3].

A number of studies have been conducted on this subject for different countries but no such work already existed for Pakistan. The focus of this study was to evaluate the magnitude of improper admissions and hospital stay in two hospitals of Pakistan. The hospitals were situated in Punjab. Nishtar Hospital Multan consisted of 1230 beds and Fauji Foundation Hospital comprised of 530 beds. The factors responsible for prolonged hospital stay were also discussed in our study.

## METHODOLOGY:

Different methods can be utilized for the measurement of efficient and effective use of hospital resources. Appropriateness Evaluation Protocol (AEP) was applied in the current study for measuring the suitability of hospital resources. AEP is a set of rules developed by Gertman and Restuccia in 1981 for determination of necessary medical care

and admissions. AEP protocol does not include gynecological and psychiatry cases. The two segments of the AEP protocols (admissions and hospital stay) are widely tested and found trustworthy.

Improper admissions and hospital stay are two major components of AEP protocol. Patients' anthropological features such as insurance policy, diagnosis, age, sex and length of stay (LOS) were treated as autonomous variables. The patients' admission to the hospital was randomly chosen for the period of three months from April 2017 to July 2017. 258 patients were evaluated for the genuineness of the admission and total inpatient days for the sample which were calculated to be 1732 days by applying AEP protocol.

The hospital management assisted in data collection. Two nurses were tasked to assist the data collection and research process at the hospital. Following procedure was adopted for data collection;

- On the first day, a number of patients were randomly selected from different wards of the hospitals excluding the Obstetrics and gynecology wards. Luckily, Both the hospitals have equal type of wards which made the comparison a lot easier
- The selected sample was evaluated for the appropriateness of admission according to the protocol (AEP).
- On the following day, new patients were selected randomly in light of the inclusion criteria's guidelines. Moreover, the hospital stays of the patients selected a day before was evaluated by using AEP criteria. The process continued for the new patients according to AEP criteria. The hospital nurses recorded the cause for any single day care which was contrary to AEP criteria.

## RESULTS:

Inappropriate Admission (IA): The results found that 22.9% of admissions were improper during the study period. The length of stay for such admissions was also smaller as compared to genuine admissions (Table-I). The association of these two factors was statistically significant ( $p < 0.0001$ ). The patients admitted in Neurosurgical and Cardiovascular wards were found satisfactory in their hospital admissions whereas Urology and ENT wards have the greatest number of improper admissions; 69.2% and 53.3% respectively. The demographics features were not statistically significant with respect to hospital admissions (Table-II).

**Table-I: Reasons for inappropriate patient day**

Reason	Percentage
Insurance and discharge problems	33.50%
Absence of physicians	17.40%
Waiting period	16.80%
Delay in surgery	11.40%
Delay in investigation results	6.80%
Conservative attitude of physicians	6.80%
Others	7.30%

**Table-II: Comparing admission status and study variable (which had no statistical association)**

Variable	Hospital		Patient sex		Patient Age		Disease diagnosis		Health insurance	
	Nishtar Hospital	Fauji Foundation	Female	Male	<40	>40	New case	Old case	Yes	No
Means of IPD	2.27	1.64	2.18	1.55	1.93	2.06	2.66	1.93	2	2.01
p - value	*0.025		*-0.044		0.641		0.254		0.951	

\* Statistically significant association.

**Table-III: Comparing means of inappropriate patient day (IPD) and study variable**

Variable	Hospital		Patient sex		Patient Age		Disease diagnosis		Health insurance	
	Nishtar Hospital	Fauji Foundation	Female	Male	<40	>40	New case	Old case	Yes	No
Appropriate	80.9	71.7	76.5	77.6	74.1	80.7	74.2	83.8	76	80
In appropriate	19.1	28.3	23.5	22.4	25.9	19.3	25.8	16.3	24	20

**Table-IV: Comparing LOS and mean of IPDs**

Length of stay	No.	Mean $\pm$ SD	95% CI	
			Low	High
1 - 4day	13	1.69 $\pm$ 1.1	1.02	2.36
5-8day	38	1.86 $\pm$ 1.04	1.52	2.21
9-12day	16	2.31 $\pm$ 1.53	1.49	3.13
13-16 day	6	2.66 $\pm$ 1.36	1.23	4.1
17-20 day	1	3		

Inappropriate Patient Day (IPD): From a total of 1732 IPD, 8.6% was marked as unsuitable hospital stay. T test was conducted to ascertain the relationships between independent variables and inpatient days and found a significant dissimilarity between the hospitals in terms of IPD, 2.27 for Nishtar hospital Multan and 1.64 day for Fauji Foundation hospital (Table-III). Same was the case with Neurosurgery and General Surgery wards, IPD (2.87 days) and (1.53 days) respectively. The highest IPD was recorded for the proper admission (P=-0.044) (Table-III).

The association between LOS and IPD is presented in Table-IV. The more the patient length of stay, the more was the IPD (P=0.035) and vice versa. Also, the IPDs were more focused and solid at the end of the patient hospital stay and on Friday.

## DISCUSSION:

Inappropriate admission (IA): Various studies on the same topic delivered that the range of incorrect hospital admission is between 4% and 44.8%, consistent with the findings of the current study (22.9%) [4]. A study conducted by Tollander J and his team indicated 23% of admissions as unsuitable according to the guidelines of AEP. An Italian scholar Pileggi C, claimed that 28% of admissions were inappropriate in a study held at an Italian hospital [5].

The possible reasons for the improper and incorrect admissions (22.9%) of the current study are mentioned below:

- \* Lack of resources at distant and lower level health facilities as compared to the health care facilities at populated and developed areas of the country.
- \* Patients' opt for a health care facility at their

own without being referred by a worthy specialist.

- \* The preference for inpatient treatment and avoiding outpatient day care by assuming the better care and services associated with inpatient section.
- \* Casual behavior of the medical staff in emergency departments of the hospitals which does not satisfy the patients need and expectations.

Inappropriate patient day (IPD): The other studies conducted on IPD are mostly done in European countries & USA [6]. Matching results were obtained from the current study in connection to IPDs. The studies showed the IPD range from 6.9% to 48%. The values for IPD for the study in hand also lie in this range (8.6 %) [7]. A study done by Santos-Eggimann on four Swiss hospitals found that IPD ranged from 8.3% to 15.3%. Ghopard study revealed that 28% of IPD were incorrect. We explored the reasons for the improper hospital stays and found that it was not associated with clinical side delays but rather was linked with the managerial issues of the hospital [8]. Patient not capable of paying hospital dues and insurance issues of the patients were the main factors in the delay of the discharge procedure. Delayed surgeries, paperwork, and poor coordination between the inpatient staff and the managers were some other related factors contributing to prolonged IPDs at hospitals [9]. According to Kossovsky, a modified discharge procedure was used and a reduction in hospital stay from 28% to 25% was observed [10]. The current study also supports the findings of the Kossovsky study. The discharge procedures at both the hospitals were slightly different. Fauji Foundation hospital discharge process was not centrally controlled and has a lower IPD as compared to centralized procedure at Nishtar hospital Multan [11].

In short, IPD is surely more related to the managerial / administrative rule and regulations governed by the hospitals and can be reduced by modifying the hospital procedures, eliminating the extra paperwork, delegation of authority to lower level and especially by changing the discharge process.

### CONCLUSIONS:

The study concluded that a huge percentage of hospital admissions and stays were improper and unsuitable. The contributing factors include the unnecessary delays in discharge process, extra paperwork, lengthy procedures and lack of quality health services at grass root level.

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