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**RESEARCH PAPER**

# Study of Admission process through Emergency Room in Indian Spinal Injuries Centre, New Delhi

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## ABSTRACT

Getting admitted into any hospital can sometimes become very tiresome and cumbersome too. Most of the hospitals face this common problem. Longer delay in the admission is considered as an indicator of poor quality. The main objectives of the study is to identify main factors and reasons which cause delay in admissions which can be eliminated and recommend accordingly for smoothening of the process. The paper tried to get information in primary as well as secondary form also using questionnaire and past hospital records of three years. This paper concludes with a list of suggestions which may be used for the smoothening of the admissions process. The setup of the study was ISIC Hospital, Vasant Kunj, New Delhi (23rd March – 19th June, 2021).

**Keywords:** - *Waiting Time, Admission process, Emergency Room, Suggestions*.

## INTRODUCTION

During these days, the requirements for getting hospitalized and patient demands are increasing day by day. As the pandemic is also very much prevalent globally, it becomes very essential for the hospitals for proper utilization of resources like beds, staff and medications. It is highly noticed that the overall functioning of the hospital also depends highly on the bed availability. If proper bed management is not done then it might hinder in other essential procedures like Surgical operations, Emergency care and most important the efficiency of the hospital. When a hospital is having issues in demand versus capacity, bed mismanagement happens. When demand is too high than the capacity, mismanagement happens.Admission means the process or fact of entering or being allowed to enter a place or organization and discharge means telling (someone) officially that they can or must leave a place or situation. In a hospital day to day or daily lots of admissions happens. It can take place in two ways,

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first through Emergency room and second through Out Patient Department. Both have their own differences in procedures and protocols to be followed. Patients' experiences during hospitalization are an important aspect of delivering quality care [1]. A patient who needs a bed in a hospital (from ER) could be in long waiting too which totally depends on the bed availability. Delayed admissions can cause confusions in the minds of patient and their attendant and further creates a bad image to the reputation of the hospital.

The Emergency Department is now the "front door" of the hospital, where patients first enter [2].Here the admission process through ER is being discussed. A busy, overflowing Emergency Department is no longer an indication of profitability[3]. Since the pandemic has struck our nation very badly, it was very tough to conduct the study. However, the study was done to streamline the process of admissions through ER. Sometimes the reasons for delay might be due to staff, sometimes due to patient. But it is very important to analyse the issue in all the angles. Thus, analysing from the employee point of view is also very important and may be very beneficial here.

**1.1 AIM**

To streamline the process of admissions through Emergency room of ISIC Hospital.

**1.2 OBJECTIVES**

1.2.1. To identify the different gaps in admissions happening through emergency room.

1.2.2. To provide valuable recommendations to the management on formulating a streamlined process in admissions.

**METHODOLOGY**

a) **Research question:**

1. What are the reasons causing delay in admissions happening through emergency room?
2. What are the recommendations which can be provided to the management for effective streamlining of the admission process?

b) **Research design**:

Descriptive Cross-Sectional Study. Here a descriptive cross-sectional study is a study in which the process of admissions and its related factors are measured at a specific point in time for a defined population in the hospital.

c) **Study setting:**

Indian Spinal Injuries Centre, Delhi – ISIC is the most advanced Spine, Orthopaedic and Neuromuscular Surgical centre in India with the latest state of the art diagnostics and surgical equipment and a highly qualified team of specialists. A multispecialty unit with spine, orthopaedic, neurosurgery, gen surgery and rehabilitation centre.

d) **Study population:**

a) The first set of data was collected from old records of patients who had been already admitted in the hospital.

b) The second data was collected from 61 hospital employees including Emergency department doctors, nurses, all Nursing in-charges, all Front office members, all billing members, patient care executives and other doctors too.

e) **Study tools:**

i. Questionnaire – employee prospective

ii. Direct observation

iii. Internal Organization records

f) **Research approach:**

The research is conducted on purely a Qualitative based approach.

g) **Sample size:**

The sample size of 61 is taken which includes the employees of ISIC hospital, Vasant Kunj, New Delhi.

| Staff | Number |
|---|---|
| **Consultants** | 5 |
| **PCE** | 3 |
| **Front Office staff** | 11 |
| **ER Nurse** | 18 |
| **ER Doctors** | 7 |
| **Billing Department** | 6 |
| **Nursing in-charges** | 11 |

**N = 61**

h) **Sampling technique:**

Convenient sampling

i) **Ethical Considerations:**

Here all the participants were informed prior about the voluntary participation. Along with the questionnaire, an ethical consent had also been forwarded to all the participants. The purpose of this survey had been mentioned prior to all the participants. Furthermore no questions were asked based on any issues which can cause mental morale down of the participants. Also it was made sure that at any point of time, the participant can quit the survey if not feeling comfortable. All the responses had kept confidential and the anonymity of the data had been preserved.

**RESULTS**

There are two set of data acquired. One set is from the questionnaire responses collected from the employees of the ISIC Hospital. This is primary data. The second data is about the previous patient admission details through Emergency room. The second data is secondary in nature. The results are as follows.

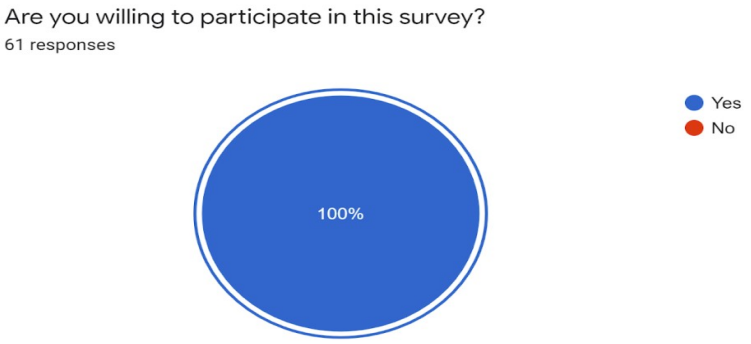


**Figure 4.1 Consent for the questionnaire**

All the responses have been marked as yes. This shows the acceptance of the hospital staff towards the participation in the questionnaire.

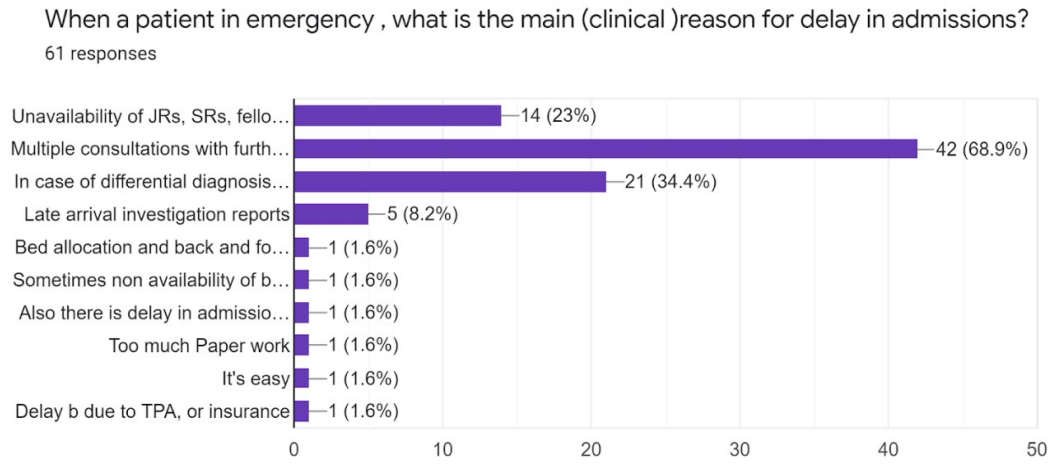


**Figure 4.2 Clinical reasons for delay in admissions**

This question was a multi answer type. Here 42 responses are with multiple consultations with further investigations advised. 21 responses showing dilemma of specialty for admission of patient.14 responses depicting unavailability of JRs, SRs, fellow doctors.5 responses showing late arrival of reports too. The rest of the options are being marked as single response. They are like bed allocation, bed availability, too much paper works etc.

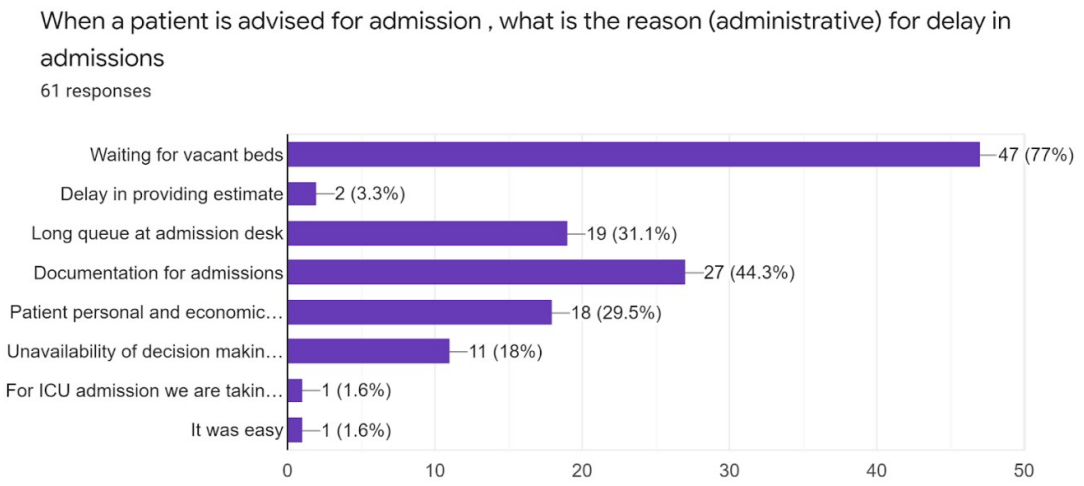


**Figure4.3 Administrative reasons for delay in admissions**

Here it's a multiple answering type question. The 47 responses showing waiting for vacant beds are the main administrative cause. 27 responses depict that documentation related issues. 19 responses says that long queue at the administrative desk. 18 responses depict that personal and economic constraints. 11 responses says unable to make proper decisions from the patient side. 2 responses shows delay in providing estimates to the patient.

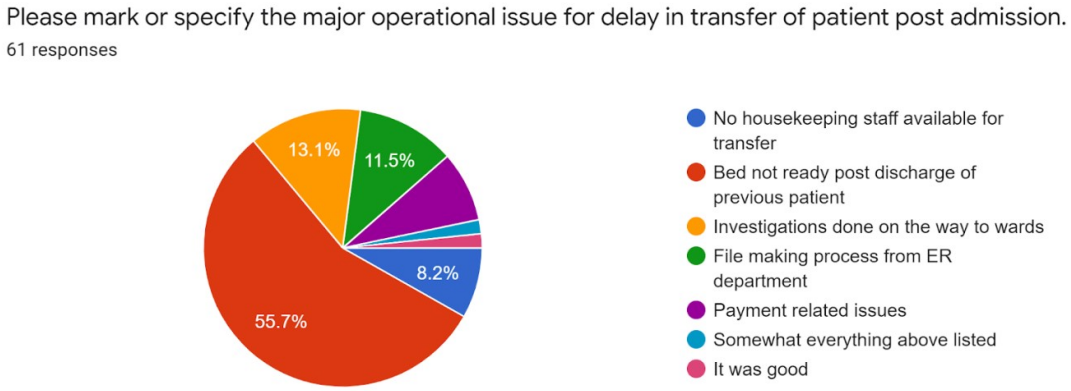


**Figure 4.4 (continued) Operational issues for delay in patient transfer post admission**

Here single answering MCQ[3] was asked. Out of 61 responses 55.7% responses were with bed not ready post discharge of previous patient. 13.1% depicts that delay occurs due to investigations happening on the way to the ward. 11.5% says due to file making process from ER department. 8.2% responses says that no housekeeping staff availability for arrangement to be made. 8.2% shows that due to payment related issues this happens.

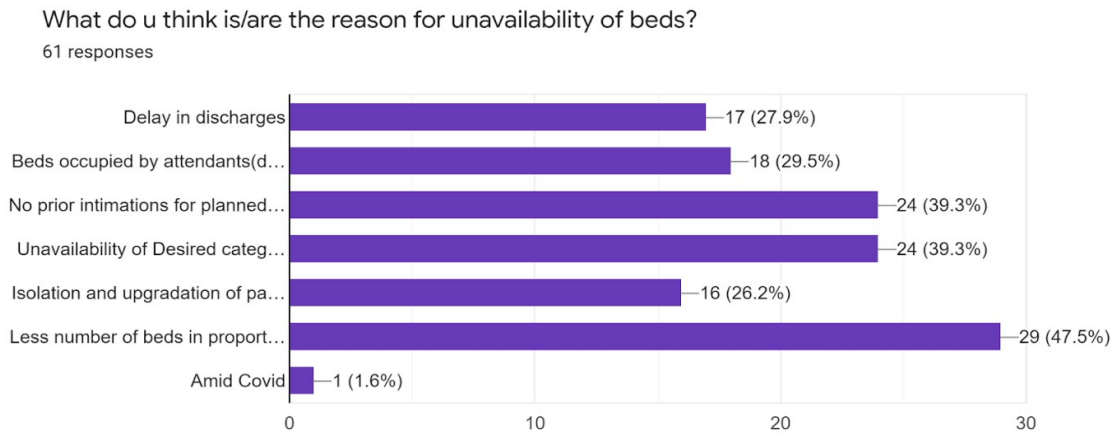


**Figure 4.5 Reasons for Unavailability of beds**

Here multiple answers were allowed. 29 responses depicted less number of beds in proportion to occupancy. 24 responses showed that due to no prior intimations for planned admissions, unavailability of bed is present. 24 responses showed that unavailability of desired category of beds. 18 responses showed that double occupancy is another main feature for unavailability of beds. 17 responses showed that delay in discharges are the main reason. And 16 responses depicted that isolation and up gradation of patient to higher category.

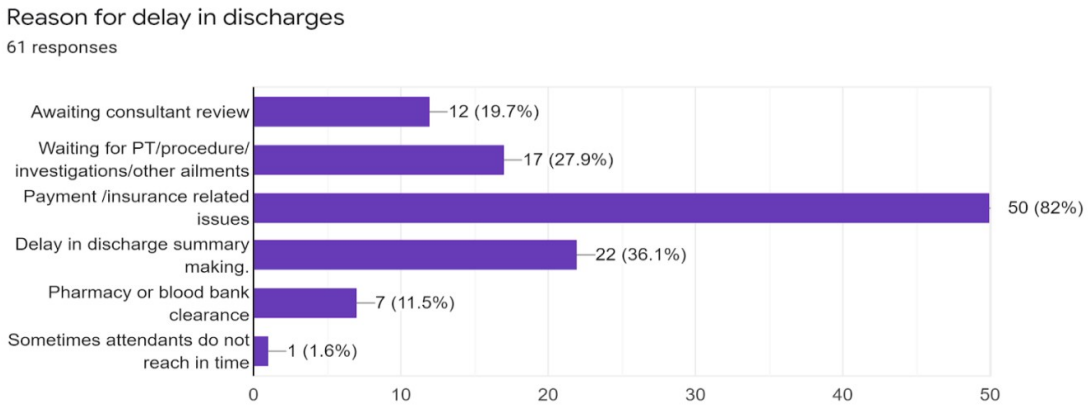


**Figure 4.6 (continued) Reason for delay in discharges**

Here multiple answer type was asked. About 50 responses showed that delay in discharge is due to payment/insurance related issues. 22 responses showed delay in discharge summary making. 17 responses showed waiting for PT/procedure/investigations and other ailments. 12 responses showed awaiting consultant review. 7 responses depicted that delay in pharmacy and blood bank clearance. And 1 response showed that attendants not reaching in time.

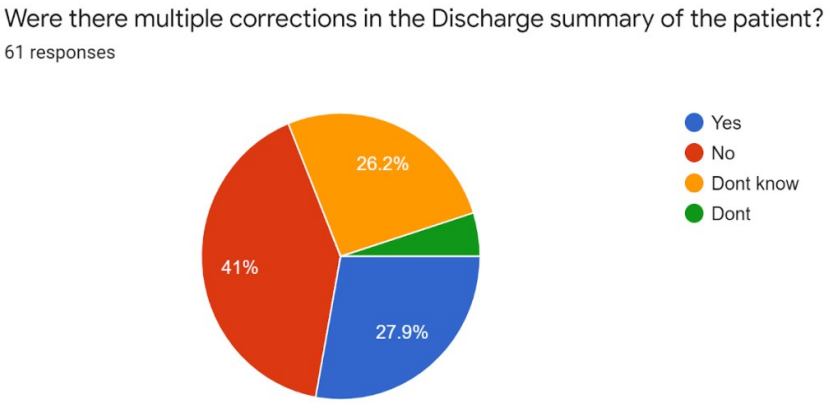


**Figure 4.7 Documentation corrections in patient Discharge summary**

Here single answer MCQ was asked. About 41% responses showed that there were no multiple corrections in the discharge summary of the patient. 27.9% responses depicted that yes there were multiple corrections in the discharge summary. Remaining part showed that employees don't know about the multiple corrections ever happened in the discharge summary.

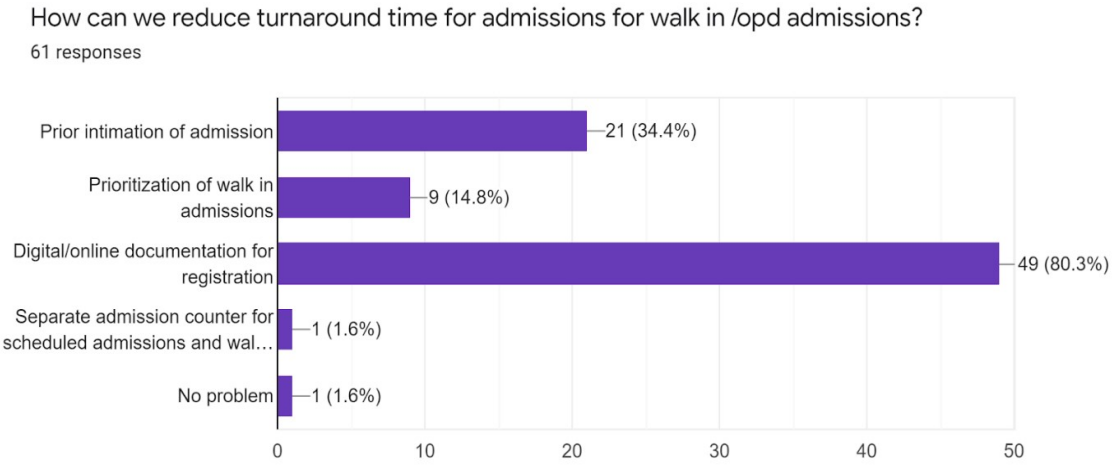


**Figure 4.8(continued) Reduction of Turnaround time for admissions**

Here multiple answering was used. About 49 responses depicted that digital/online documentation for registration. 21 responses showed that prior intimation of admissions. 9 responses showed prioritization of walk-in admissions. One response showed that separate counter for scheduled admissions and walk-in admissions. One response also showed that no problem.

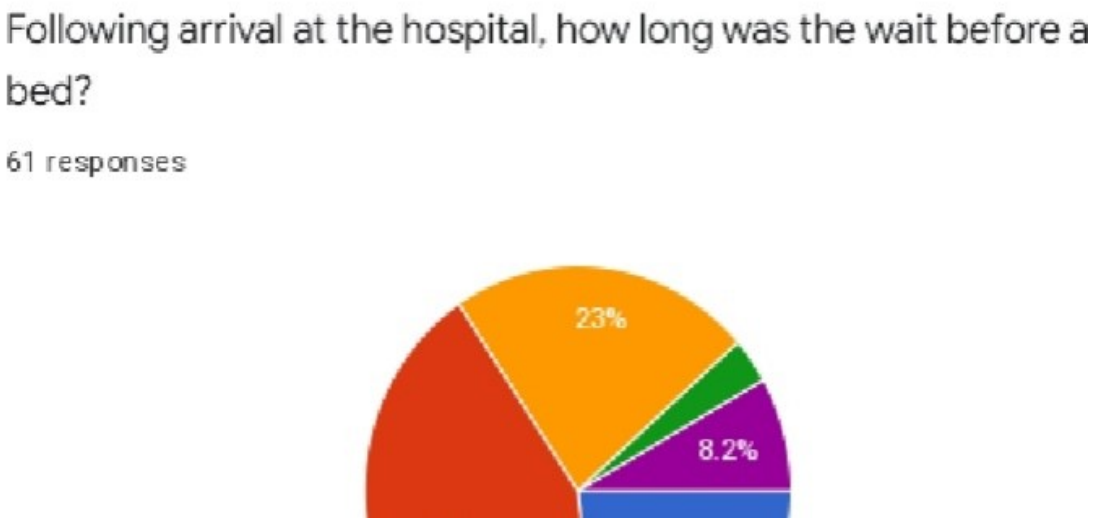


**Figure 4.9 Waiting time before admissions**

Here single answering type was asked. About 42.6% responses were showing delay of 1-2 hours delay in admissions. 23% showed less than 1 hour and also 23% showed that in between 2-4 hours. 8.2% marked as they cannot remember exactly how much was the delay. 3.2% showed that delay of 4-8 hours also take place in admissions.

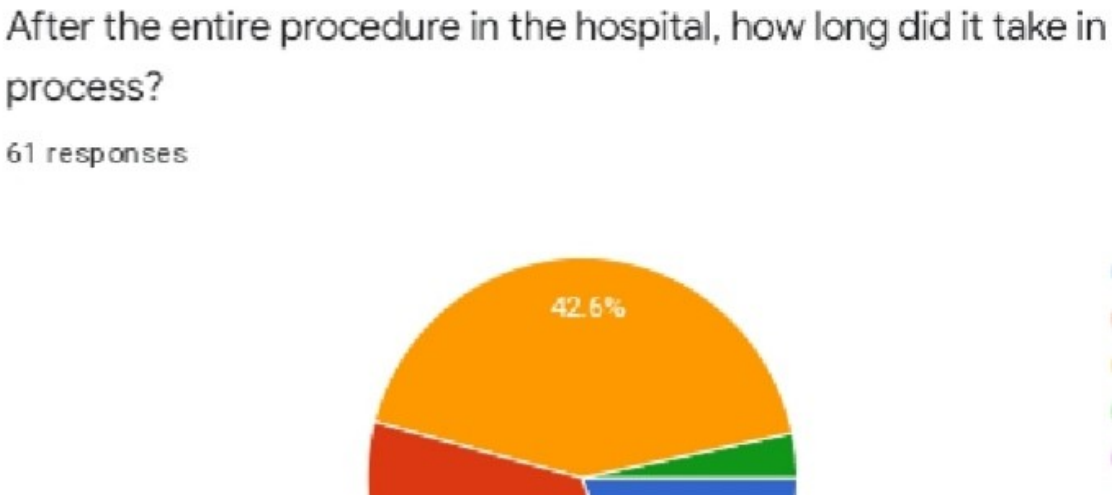


**Figure 4.10(continued) Waiting time before discharges**

Here single answering type question was asked. About 42.6% responses showed that 2-4 hours of delay in the discharges take place. 34.4% responses showed that 1-2 hours delay takes place. 19.7% responses showed that 4-8 hours of delay also takes place. There were no responses marked for +8 hours option.

**Table 4.1 Excel data of randomly chosen previously admitted patients through ER.**

| IP No | Date of arrival in ER | Time of arrival in ER (hh/mm) | Date of Admission | Time of Admission (hh/mm) | Payment Method | Required ward | Ward Billing Category | Treatment Initiation Time (hh/mm) | Delay in Time (hh/mm) | Reason for delay in Admission |
|---|---|---|---|---|---|---|---|---|---|---|
| 18/51675 | 5/8/2018 | 15:40 | 5/8/2018 | 17:02 | ISIC 2018 | EW-115 | SHA | 17:30 | 1:22 | No Bed Availability |
| 18/51677 | 5/8/2018 | 19:25 | 5/8/2018 | 19:25 | ECHS | HDU | HDU | 22:10 | nil | |
| 18/51679 | 5/8/2018 | 20:00 | 5/8/2018 | 20:02 | CGHS (Cash) | GW | GW | 22:00 | nil | |
| 18/51680 | 5/8/2018 | 20:44 | 5/8/2018 | 20:54 | ISIC 2018 | Heritage Ward | DEACU | 21:30 | nil | |
| 18/51692 | 5/9/2018 | 11:49 | 5/9/2018 | 11:49 | ISIC 2018 | ICU 2 | ICUGW | 12:00 | 1:40 | Documentation delay and Prior Investigation |
| 18/51701 | 5/9/2018 | 16:47 | 5/9/2018 | 16:47 | CGHS (Cash) | GW Extn | GW | 18:00 | nil | |
| 18/51704 | 5/9/2018 | 11:30 | 5/9/2018 | 19:56 | ECHS | NEW WARD | GW | 15:20 | 8:26 | Insurance panel approval waiting and no bed availability |
| 18/51716 | 5/10/2018 | 13:00 | 5/10/2018 | 13:09 | ISIC 2018 | ICU 1 | ICUSHA | 14:00 | nil | |
| 18/51721 | 5/10/2018 | 18:00 | 5/10/2018 | 18:18 | ISIC 2018 | ICU HC | ICUGW | 16:47 | 0:18 | Documentation delay |
| 18/51724 | 5/10/2018 | 19:14 | 5/10/2018 | 19:14 | ISIC 2018 | NEW WARD | GW | 22:35 | nil | |
| 18/51725 | 5/11/2018 | 2:30 | 5/11/2018 | 4:27 | ISIC 2018 | Nanda Devi Ward | DEACU | 5:00 | 1:53 | No Bed Availability |
| 18/51730 | 5/11/2018 | 10:10 | 5/11/2018 | 10:14 | ISIC 2018 | New Ward | GW | 11:40 | nil | |
| 18/51739 | 5/11/2018 | 16:25 | 5/11/2018 | 16:25 | ISIC 2018 | Heart Command | ICUSHA | 16:50 | nil | |
| 18/51741 | 5/11/2018 | 21:25 | 5/11/2018 | 21:29 | ISIC 2018 | Everest Ward | SHA | 21:43 | nil | |
| 18/51742 | 5/11/2018 | 21:53 | 5/11/2018 | 22:06 | ISIC 2018 | Everest Ward | SHA | 2:34 | nil | |
| 18/51743 | 5/12/2018 | 1:14 | 5/12/2018 | 1:17 | CGHS | GW | GW | 1:30 | nil | |
| 18/51744 | 5/12/2018 | 5:08 | 5/12/2018 | 5:08 | ISIC 2018 | GW | GW | 6:55 | nil | |
| 18/51745 | 5/12/2018 | 8:43 | 5/12/2018 | 8:43 | ISIC 2018 | Day Care Ward | GW | 9:55 | nil | |
| 18/51749 | 5/12/2018 | 11:04 | 5/12/2018 | 11:11 | ISIC 2018 | ICU 1 | ICUGW | 12:00 | nil | |
| 18/51750 | 5/12/2018 | 11:54 | 5/12/2018 | 11:54 | ISIC 2018 | HDU | HDU | 12:00 | nil | |
| 18/51754 | 5/12/2018 | 16:42 | 5/12/2018 | 16:42 | ISIC 2018 | OT Day Care Ward | GW | 1:19 | nil | |
| 18/51756 | 5/13/2018 | 0:44 | 5/13/2018 | 0:44 | CGHS | Heritage Ward | DEACU | 1:00 | nil | |
| 18/51762 | 5/13/2018 | 15:15 | 5/13/2018 | 15:28 | ISIC 2018 | Day Care Ward | GW | 15:30 | nil | |
| 18/51763 | 5/13/2018 | 15:42 | 5/13/2018 | 15:42 | ISIC 2018 | ICU 2 | ICUGW | 16:30 | nil | |
| 18/51766 | 5/13/2018 | 16:30 | 5/13/2018 | 16:30 | CASH FREE PATIENT | ICU 1 | ICU | 21:00 | nil | |
| 18/51769 | 5/13/2018 | 18:17 | 5/13/2018 | 18:17 | ISIC | GW | GW | 19:30 | nil | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2018 | | | | | |
| 18/51771 | 5/13/2018 | 18:52 | 5/13/2018 | 18:52 | ISIC 2018 | Everest Ward | SHA | 18:52 | nil | |
| 18/51773 | 5/13/2018 | 21:05 | 5/13/2018 | 21:05 | ISIC 2018 | GW | GW | 21:35 | nil | |
| 18/51774 | 5/13/2018 | 21:35 | 5/13/2018 | 21:35 | CGHS | Day Care Ward | GW | 23:00 | nil | |
| 18/53716 | 8/9/2018 | 14:12 | 8/9/2018 | 14:13 | CGHS (Cash) | Heart Command | ICUGW | 14:30 | nil | |
| 18/53948 | 8/20/2018 | 10:12 | 8/20/2018 | 10:21 | ISIC 2018 | Heart Command | ICUGW | 10:12 | nil | |
| 18/54082 | 8/26/2018 | 8:00 | 8/26/2018 | 9:04 | CGHS | Everest Ward | SHA | 8:00 | 1:04 | Documentation delay |
| 18/54282 | 9/3/2018 | 13:46 | 9/3/2018 | 13:46 | CGHS | Heart Command | ICUSGL | 14:00 | nil | |
| 18/54419 | 9/9/2018 | 0:30 | 9/9/2018 | 0:38 | ISIC 2018 | HDU | HDU | 0:49 | nil | |
| 19/57952 | 3/6/2019 | 22:00 | 3/6/2019 | 22:25 | ISIC 2018 | Everest Ward | GW | 22:00 | 0:25 | Documentation delay |
| 19/57953 | 3/7/2019 | 6:00 | 3/7/2019 | 6:42 | CGHS (Cash) | DEACU | GW | 6:00 | 0:42 | Documentation delay |
| 19/57957 | 3/7/2019 | 11:35 | 3/7/2019 | 11:35 | ISIC 2018 | DEACU | GW | 11:35 | nil | |
| 19/57965 | 3/7/2019 | 13:35 | 3/7/2019 | 15:43 | ISIC 2018 | SHA | SHA | 13:35 | nil | |
| 19/57967 | 3/7/2019 | 16:50 | 3/7/2019 | 17:27 | ECHS | ICU 2 | ICUSHA | 13:35 | 0:37 | Documentation delay and Bed availability |
| 19/57968 | 3/7/2019 | 17:45 | 3/7/2019 | 17:49 | ISIC 2018 | Day Care Ward | GW | 17:45 | nil | |
| 19/57971 | 3/7/2019 | 20:00 | 3/7/2019 | 20:06 | ISIC 2018 | Everest Ward | SHA | 20:00 | nil | |
| 19/57973 | 3/7/2019 | 21:45 | 3/7/2019 | 22:53 | ISIC 2018 | ICU 2 | ICUGW | 21:45 | 1:08 | No bed availability |
| 19/57974 | 3/8/2019 | 0:17 | 3/8/2019 | 0:17 | CGHS | Nanda Devi Ward | SDA | 0:17 | nil | |
| 19/57985 | 3/8/2019 | 14:00 | 3/8/2019 | 14:49 | CGHS (Cash) | ICU 2 | ICUSGL | 14:00 | 0:49 | Documentation delay and Prior Investigation |
| 19/57987 | 3/8/2019 | 13:36 | 3/8/2019 | 15:56 | ECHS | GW Extn | GW | 13:36 | 2:20 | Panel approval pending and no bed availability |
| 19/57990 | 3/8/2019 | 16:30 | 3/8/2019 | 17:53 | CGHS | Everest Ward | SHA | 16:30 | 1:23 | Documentation delay and no bed availability |
| 19/57991 | 3/8/2019 | 19:30 | 3/8/2019 | 19:55 | CGHS | GW | GW | 19:30 | 0:25 | Documentation delay |
| 19/57992 | 3/8/2019 | 20:15 | 3/8/2019 | 20:15 | CGHS | New Ward | GW | 20:15 | nil | |
| 19/57993 | 3/9/2019 | 1:04 | 3/9/2019 | 1:04 | ISIC 2018 | Everest Ward | GW | 1:04 | nil | |
| 19/57994 | 3/9/2019 | 5:05 | 3/9/2019 | 5:05 | CGHS | Heart Command | ICUGW | 5:05 | nil | |
| 19/57995 | 3/9/2019 | 4:30 | 3/9/2019 | 4:30 | ISIC 2018 | ICU 1 | ICUGW | 4:30 | 1:15 | No Bed Availability |
| 19/57996 | 3/9/2019 | 6:08 | 3/9/2019 | 6:08 | ISIC 2018 | SDACU | DEACU | 6:08 | nil | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 19/58002 | 3/9/2019 | 9:00 | 3/9/2019 | 10:43 | ISIC 2018 | ICU | ICUSGL | 9:00 | 1:43 | No Bed Availability and Investigation delay |
| 19/58005 | 3/9/2019 | 12:03 | 3/9/2019 | 12:27 | CGHS | ICU HC | ICUSHA | 12:03 | 0:24 | Documentation delay |
| 19/58011 | 3/10/2019 | 1:15 | 3/10/2019 | 1:15 | ISIC 2018 | HDU | HDU | 1:15 | nil | |
| 19/58012 | 3/10/2019 | 2:20 | 3/10/2019 | 2:20 | ISIC 2018 | Everest Ward | SDA | 2:20 | nil | |
| 19/58013 | 3/10/2019 | 3:48 | 3/10/2019 | 3:48 | ECHS | ICU 1 | ICUGW | 3:48 | nil | |
| 19/58014 | 3/10/2019 | 4:41 | 3/10/2019 | 4:41 | ISIC 2018 | GW | GW | 10:00 | nil | |
| 19/58017 | 3/10/2019 | 12:00 | 3/10/2019 | 12:02 | ISIC 2018 | OT Day Care Ward | GW | 12:00 | nil | |
| 19/58024 | 3/10/2019 | 21:00 | 3/10/2019 | 21:25 | CGHS | Everest Ward | SHA | 21:00 | 0:25 | Documentation delay |
| 19/58025 | 3/11/2019 | 10:00 | 3/11/2019 | 10:03 | CGHS | Heart Command | ICUSGL | 10:45 | nil | |
| 19/58028 | 3/11/2019 | 10:30 | 3/11/2019 | 10:43 | ISIC 2018 | ICU 2 | ICUSHA | 23:00 | nil | |
| 19/58044 | 3/11/2019 | 12:23 | 3/11/2019 | 16:30 | ECHS | Everest Ward | SDA | 17:00 | 4:07 | Panel approval pending |
| 19/58046 | 3/11/2019 | 17:06 | 3/11/2019 | 17:06 | Health Insurance TPA GIPSA | GW Extn | GW | 13:00 | nil | |
| 19/58049 | 3/11/2019 | 18:00 | 3/11/2019 | 18:04 | CGHS (Cash) | Day Care Ward | GW | 18:00 | nil | |
| 19/58050 | 3/11/2019 | 17:50 | 3/11/2019 | 18:25 | ISIC 2018 | Heart Command | SHA | 17:50 | 0:35 | Documentation delay |
| 19/60623 | 7/8/2019 | 11:49 | 7/8/2019 | 11:49 | CGHS | Heart Command | ICUGW | 12:40 | nil | |
| 19/60741 | 7/12/2019 | 19:20 | 7/12/2019 | 19:20 | ISIC 2019 | GW Extn | GW | 20:00 | nil | |
| 20/64738 | 1/24/2020 | 15:30 | 1/24/2020 | 15:59 | CGHS | ICU 2 | ICUSHA | 15:30 | 0:29 | Documentation delay |
| 20/64740 | 1/24/2020 | 16:25 | 1/24/2020 | 16:25 | CGHS (Cash) | GW | GW | 16:25 | nil | |
| 20/64741 | 1/24/2020 | 15:50 | 1/24/2020 | 15:50 | CGHS | HDU | HDU | 15:50 | 0:49 | Clinical and documentation delay |
| 20/64747 | 1/25/2020 | 8:10 | 1/25/2020 | 8:44 | ISIC 2019 | Heart Command | ICUGW | 8:10 | 0:34 | Documentation delay |
| 20/64751 | 1/25/2020 | 10:00 | 1/25/2020 | 11:09 | ISIC 2019 | Heart Command | ICUGW | 10:00 | 1:09 | No bed availability |
| 20/64754 | 1/25/2020 | 15:59 | 1/25/2020 | 15:59 | ISIC 2019 | GW | GW | 15:59 | nil | |
| 20/64755 | 1/25/2020 | 15:40 | 1/25/2020 | 16:19 | CGHS | Heart Command | ICUSGL | 15:40 | 0:39 | No Bed availability |
| 20/64757 | 1/25/2020 | 8:15 | 1/25/2020 | 8:55 | ISIC 2019 | Heart Command | ICUGW | 8:15 | 0:45 | No Bed availability |
| 20/64764 | 1/26/2020 | 12:50 | 1/26/2020 | 14:39 | CGHS (Cash) | Day Care Ward | GW | 12:50 | 1:49 | Patient transfer and Bed availability |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 20/64765 | 1/26/2020 | 14:05 | 1/26/2020 | 15:22 | ISIC 2019 | Heart Command | ICUGW | 14:05 | 1:17 | No Bed availability |
| 20/64766 | 1/26/2020 | 15:00 | 1/26/2020 | 15:28 | CGHS | Nanda Devi Ward | SDA | 15:00 | 0:28 | Documentation delay |
| 20/64771 | 1/26/2020 | 17:40 | 1/26/2020 | 18:53 | ISIC 2019 | ICU 2 | ICUGW | 17:40 | 1:13 | Initial test and non availability of beds |
| 20/64772 | 1/26/2020 | 17:40 | 1/26/2020 | 17:40 | CGHS (Cash) | Heart Command | ICUGW | 19:10 | nil | |
| 20/64773 | 1/26/2020 | 20:14 | 1/26/2020 | 20:14 | ISIC 2019 | GW | GW | 20:14 | nil | |
| 20/64786 | 1/27/2020 | 12:50 | 1/27/2020 | 13:47 | CGHS | Heart Command | ICUGW | 12:50 | 0:57 | Documentation delay |
| 20/64789 | 1/27/2020 | 14:53 | 1/27/2020 | 14:53 | ECHS | GW Extn | GW | 14:53 | nil | |
| 20/64791 | 1/27/2020 | 15:21 | 1/27/2020 | 15:21 | ISIC 2019 | GW Extn | GW | 15:21 | nil | |
| 20/64792 | 1/27/2020 | 15:45 | 1/27/2020 | 15:45 | CGHS (Cash) | ICU 2 | ICUGW | 15:45 | 0:23 | Documentation delay |
| 20/64795 | 1/27/2020 | 19:05 | 1/27/2020 | 19:05 | ISIC 2019 | Everest Ward | SHA | 19:05 | nil | |
| 20/64796 | 1/27/2020 | 20:30 | 1/27/2020 | 21:02 | ECHS | HDU | HDU | 20:30 | 0:32 | Documentation delay |
| 20/64797 | 1/27/2020 | 23:22 | 1/27/2020 | 23:22 | ISIC 2019 | Day Care Ward | GW | 23:22 | nil | |
| 20/64805 | 1/28/2020 | 13:07 | 1/28/2020 | 13:07 | ISIC 2019 | Heart Command | ICUGW | 14:00 | nil | |
| 20/64807 | 1/28/2020 | 13:25 | 1/28/2020 | 13:25 | CGHS (Cash) | Everest Ward | SHA | 14:00 | nil | |
| 20/64815 | 1/28/2020 | 18:25 | 1/28/2020 | 18:25 | ISIC 2019 | Nanda Devi Ward | DEACU | 18:30 | nil | |
| 20/64816 | 1/28/2020 | 17:40 | 1/28/2020 | 18:39 | ISIC 2019 | Heart Command | ICUGW | 17:40 | 0:59 | Documentation delay |
| 20/64819 | 1/28/2020 | 18:30 | 1/28/2020 | 19:48 | CGHS | Heart Command | ICUSHA | 20:20 | 1:18 | Documentation and Investigation delay |
| 20/68695 | 11/11/2020 | 21:05 | 11/11/2020 | 23:27 | GIPSA (Vipul Med Corp Pvt Ltd) | Everest Ward | GW | 21:00 | 2:22 | Delay from insurance company |
| 20/68708 | 11/12/2020 | 23:50 | 11/13/2020 | 0:41 | GIPSA (Max Bhupa Health Ins) | Tracheotomy | TRAC | 0:14 | 0:51 | Insurance panel approval waiting |
| 20/68722 | 11/14/2020 | 12:00 | 11/14/2020 | 13:15 | CGHS | Tracheotomy | TRAC | 12:00 | 1:15 | Documentation delay and no bed availability |
| 20/68751 | 11/17/2020 | 2:57 | 11/17/2020 | 2:57 | GIPSA (Paramount Health Care TPA) | Tracheotomy | TRAC | 12:35 | nil | |
| 20/68806 | 11/20/2020 | 3:42 | 11/20/2020 | 3:42 | CGHS | Everest Ward | GW | 10:30 | nil | |
| 20/68850 | 11/23/2020 | 3:20 | 11/23/2020 | 3:27 | CGHS (Cash) | Tracheotomy | TRAC | 3:30 | nil | |

The above shown is the primary data being collected from the hospital records and being compiled in excel. Random samples of 100 people are being taken from the hospital records and are analysed. Here the delay in admissions can be seen as the separate column is being shared here. Also along with the reports, there are lot of reasons which mentioned the reason for the delay of patient admissions. Here even the time of initial treatment is also being mentioned. Some people are showing less than 30 minutes also and for some patients it has even reached more than 4 hours and even 8 hours in delay of admissions. But all the reasons may differ accordingly like documentation delay, insurance panel approval delay, and initial service at ER room delay or might even be like non availability of beds in the desired category.All these are being discussed in the further sections.

**DISCUSSIONS**

Delays in ER can cause an impact for critically ill patients which will lead to bad outcomes. This has been already elaborated in literatures [4,5,6]. Delay of more than 6 hours in ER has direct correlation with poor outcomes [7,8,9]. Originally 5.8 hours from ER to critical bed by AHA 2002 survey [10]. Delays in ER can be due to multiple factors like Hospital policies, availability of bed, higher patient input, financial constraints, associated comorbidities, multiple visits of patients etc. out of which few have been discussed below.

As seen in the above results, the questions which were asked in the questionnaire were considered significant in nature. Also the tabular form of collected data about the patients is also very important here. In the questionnaire part, the first question asked was about asking the employees their view about the main clinical reason in the delay of the admission process. The question played a major role as that it showed issues like unavailability of JRs, SRs or other fellow doctors etc., late arrival of the investigation report, multiple consultations with different consultants and also differential diagnosis confusion.

The second question asked was about the causes for the administrative delays in the admission of a patient through ER. As mentioned above, clinical reasons are not enough to capture the causes. Thus multiple answering model questions were asked with options as waiting for vacant beds, delay by billing team in providing estimates, already present long queue at admission desk, and documentation delay by the admissions desk. These mentioned are the hospital side issues. Coming on to the patient side, unable to take a decision properly is also another issue here, patient personal and economic/financial reasons. The mentioned are just a few options. Separate option of ‘others’ was also involved in which participants had written their points to be considered.

The question on the specification of the major operational issue for delay in transfer of patient post admission was to find out exactly what is the reason which employees have seen there. May be unavailability of housekeeping staff for transfer of patient. Beds not ready post discharge of previous

patients. Here desired categories of beds are being considered. General ward category or sharing semi private type or single deluxe rooms are available. Here as the category changes from general ward to others, up-gradation happens and accordingly whole charges change for the patients. Even delay in file making process and payment and also investigations done on the way before doing admissions. Mostly these are done only in the case of critical patients and thorough investigations are the only way to find the answers.

The next question was about asking the hourly or timely delay which is very common among employees. As soon as the patient reaches ER, the duration which it took to make the patient admitted into ward bed. Single answering type was made here for accurate answers. Most of the employees also told that 1-2 hours delay is very common. This is also true from the old data which was seen the table. Mostly the delays were in between 1-2 hours. Very few cases have even escalated to 4-8 hours delay. These cases have proper reasons for the long duration like panel approval, multiple investigations or consultation needed or even lack of bed availability. Also there are cases under one hour too which happens due to documentation delays, delay in doctors at ER, billing delay, file making of the patient etc. However it is very sure that no critical care need patient is kept for 4 to 8 hours of delay. If that type of delay, then the patient will be stable enough or sometimes might not be categorised as an emergency case which needs an immediate attention.

The next question was based on what are the main causes of non-availability of ward beds of desired category. The employees have also answered in multiple answer way. Mainly they have said is about less number of beds in proportion to occupancy [occupancy rate = (total beds occupied/ No. of beds available) * 100]. The next issue was taken as no prior intimation of the admissions as prior intimations can be done on a preference which can be easily and quickly done. Also most important another feature is lack of availability of desired category beds. Since the main issue can come during payment of bill time, if the patient is not being admitted in the desired category of the bed. Another issue which was taken into account was delay in discharges. As the delay increases in the discharges, the availability of empty bed for the next patient gets delayed thus showing no availability of bed. Also a process of up-gradation of currently admitted patient to a higher category can also cause lack of beds. Sometimes patient and their attendants take up ‘Double occupancy’ i.e. already the patient is being allowed to one bed but the attendant is also allocated another bed to stay due to the availability of patient beds and non-availability of attendant beds. For example, if the patient is admitted in ICU then no attendant can be permitted to stay with the patient, thus, in such cases, double occupancy is seen.

If we are going into deep into one of the factor which is reason for delay in discharges, many issues are present. Mainly is the payment or insurance related issues. Sometimes the insurance approval takes

up 3-4 hours and also asks for physical presence of the patient. The delay in discharge summary making is also another issue. The summary making is a tiring process and takes a lot of efforts of the typist. Sometimes multiple mistakes in the discharges may also be the reason. Another issue in delay of discharges are await for the consultant reviews, which indirectly effects the further admission into hospital. Before leaving the hospital, the patient should do the blood and pharmacy clearance before he leaves the hospital. Not always the hospital's reason but sometimes the patient's reason also takes place. For example if the patient's attendant does not come on time then it can again cause delay in the discharge.

When coming to the next question, it was asking the time taken in the completion of discharge process. Most of the employees in the hospital have witnessed 2-4 hours of delay. Thus these hours will indirectly add up onto admission time delay. The next majority was about 1-2 hours delay in the delay. Thus it was seen that no cases were above 8+ hours since no response were collected. Also less than one hour, is still fine and people can tolerate this. As the waiting time increases, people will become more restless and out of control.

Also while making the discharge summary of the patient, another question was asked regarding the multiple corrections in the Discharge summary. Mostly the hospital employees did not saw any multiple corrections in the discharge summary. Correction in the patient summary may lead to more delay in discharge, further indirectly again targeting the delay in admissions. And here most of the staff even answered unaware manner about the delays happening due to the Discharge summary.

Thus the turnaround time for admissions for the walk in/ OPD admissions can be reduced by Entire digital way of documentation for registration. These systems have direct system for saving (automatic saving). Thus burden reduces of the fear of losing as well as the automatic updating will also be there. Very low maintenance charges for continuing the services. Prior intimation of the admissions is also another factor which was already discussed before.

**Table 5.1**Number of cases and delay time from the secondary data taken from the Hospital

| Delay Time | Number of Cases | Percentage (out of 38) |
|---|---|---|
| **<1 hour** | 20 | 52% |
| **1-2 hours** | 14 | 36% |
| **2-4 hours** | 2 | 5% |
| **>4 hours** | 2 | 5% |
| **No delay** | 62 | |

**N= 100**

From the secondary data which has been collected from the hospital, it was found that few cases took delay in admissions. Most of the delays were observed less than 1 hour time. About 20 were in number. 14 cases took 1-2 hours of delay. 89% of the delays are in the range of 15 minutes to 2 hours.

As we can see even greater than 2 hours can also be seen. Out of total samples, 62 % are showing no delays and 38% of cases are showing delays.

**Table 5.2**Cause of delay in patient admission taken from the secondary data of Hospital.

| Cause of Delay | Number of Cases |
|---|---|
| **No Bed availability** | 15 |
| **Documentation delay** | 21 |
| **Insurance panel approval** | 5 |
| **Initial Investigation delay** | 5 |
| **Delay from doctor's side** | 1 |
| **Patient transfer** | 1 |
| **No Cause** | 62 |

**N= 100**

As discussed above, time range was seen that 89% of the delayed cases are in the range of 15 minutes to 2 hours, there are few causes to which were recorded from the patient's ER card. Documentation delay is taking about 21 times of the 38 delayed cases. Non availability of bed becomes second most occurring reason with 15 times of the 38 delayed. Panel approval, initial investigation delay too takes up 5 each. Thus the main causes for the delay also becomes clear with the secondary data of patients.

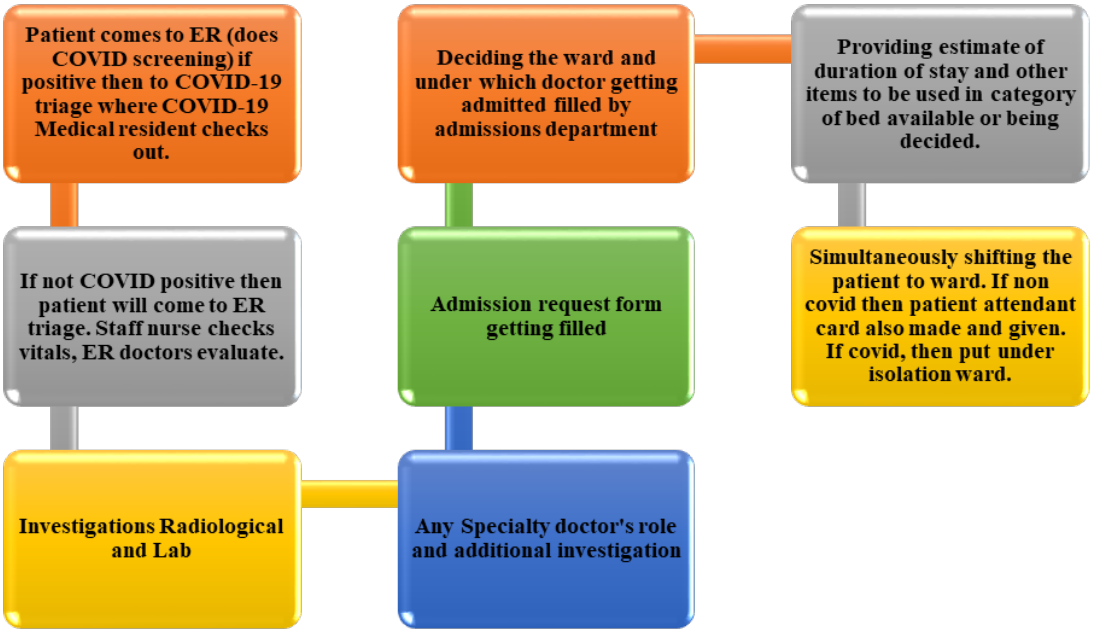


**Figure 5.1 Processes of Admissions through ER**

As shown above the process of admissions through ER is shown. Since COVID-19 pandemic too, there are two separate entries. One is through COVID triage and another through normal ER. Medical residents are present at ER as well as at COVID triage too. They investigate and accordingly take up the next step which is need of any Radiological support or any additional support of specialty doctor is

needed or not. After getting these part done, the next is the admission request form getting filled and allocating the ward bed. The billing department handles with all the payment related issues and estimates. After all these the patient is shifted to the ward. In case of emergency, billing related issues can be performed later too since treatment is on first priority.

**CONCLUSIONS**

As discussed in before sessions, it is seen that delay caused in the admitting process through ER is a major issue in not only the functioning of the ER but the entire hospital. In the night times, when the OPD gets closed, the only way of entrance into a hospital is through ER. As a result, it should be made always clear that the process should be smooth throughout all days in the ER. There may be many causes which can hamper the admission process. As discussed before, the main reasons for the delay may be lack of availability of on call doctors, resident doctors, delays causing in the documentation process as a lot of signatures and formalities are required, any prior investigation if needed which only can help the doctors to reach up to a diagnosis etc. Also it has been noted that the delay time can even go up to 8 hours but that does not indicate that the patient is being denied by treatment. After stabilising the patient properly, if the ER duty doctors find that the patient is stable and not in any emergency condition, then delay might occur due to other factors like bed availability, insurance approvals, delay from patient side.

As compared to the primary data which were given by the hospital employees, all the factors which were causing delay in admissions as well as discharges were recorded. The secondary data taken randomly from past three years data showed that how much delay were causing by each case where more than 60% cases didn't caused any sort of delay all. In delays, maximum were seen in the category of 1-2 hours. According to AHA, for a critical patient to get into critical ward bed, 5.8 hours is taken as the benchmark. When comparing that, ISIC hospital has very good way of ER admissions rate and timing. More than 50% cases of the delayed ones are below one hour delay which is very good in performance.

**Recommendations**

1) Proper and adequate quantity of staff should be present in the emergency department so that no delay occurs in terms of lack of availability of resident doctors or specialist consultations in certain special cases.
2) Concept of Discharge lounge may be applicable. A room size which is similar to the ICU attendants' waiting lounge would be good. Those patients which need clearance or approval from insurance and TPA could wait there as they might take 3-4 hours also. All basic necessities may be provided there so that the patient should feel comfortable.

3) A time motion study to reduce the wastage of movement and time. Even recording of the number of footsteps or time taken to reach admissions department, TPA counter, OPD-IPD billing and even admin office. If all the departments are made close to each other, the time saving may be done for the daily processes.

4) In certain emergency cases like spine surgery cases, source of pain might be difficult to find out. In these cases, it takes much more time as confusion pertains under which department the patient should be admitted. In these cases at least the patient may be admitted under the pain management then afterwards the investigations may be done to find the exact cause. By the time critical care and medications required can be given to the patient.

5) In the cases of urgent requirement of investigations from ER, they could be put up on priority rather than kept in the waiting list. Other non - priority cases may be kept in the waiting list.

6) Since admissions are very much closely related to discharges, therefore it should be planned 24 hours prior so that the bed management may be done smoothly. Also the discharges should be done in the morning time itself and should not exceed into the afternoon period as it can cause discomfort in the patient as well as the attendant. Also for hospital new admissions get delayed due to non- availability of beds or changing the bed category unnecessarily.

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**REFERENCES**

1. Clayton Wu, Joy Melnikow, TuDinh, James F. Holmes, Samuel D. Gaona, Thomas Bottyan, Debora Paterniti, Daniel K.Patient Admission Preferences and Perceptions. [Internet], 2015, October, 16(5), 707-714. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4644039/
2. NiloySarkar, TatiniNath. Analysis of patient waiting time for hospital admission and discharge process [Internet]. 2016, August 4(8), 1097-1108. Available from: https://www.journalijar.com/uploads/321_IJAR-11829.pdf

3. NiloySarkar, TatiniNath. Analysis of patient waiting time for hospital admission and discharge process [Internet]. 2016, August 4(8), 1097-1108. Available from: https://www.journalijar.com/uploads/321_IJAR-11829.pdf
4. Rapoport J, Teres D, Lemeshow S, Harris D. Timing of intensivecare unit admission in relation to ICU outcome. Critical careMed. 1990;18:1231-5
5. Nguyen HB, Rivers EP, Havstad S, Knoblich B, Ressler JA, MuzzinAM, et al. Critical care in the emergency department aphysiologic assessment and outcome evaluation. AcadEmergMed. 2000;7:1354-61
6. Car ter EJ, Pouch SM, Larson EL. The Relationship BetweenEmergency Department Crowding and Patient Outcomes: ASystematic Review. J NursScholarsh. 2014; 46:106-15
7. Chalfin DB, Trzeciak S, Likourezos A, Baumann BM, Dellinger RP.Impact of delayed transfer of critically ill patients from theemergency department to the intensive care unit. CritCareMed. 2007;35:1477-83
8. Group L. The results of the American Hospital Associationsurvey of emergency department(ED) and hospital capacity:AmericanHospAssoc 2006
9. Rehmani R. Emergency section and overcrowding in auniversity hospital of Karachi, Pakistan. J Pak Med Assoc. 2004;54:233-7.
10. BadarAfsal, Emadsiddiqie, GhazalaIrfanKhazi, Nishi shakeel, Impact of delay in admission on the outcome of critically ill patients presenting to the emergency department of a tertiary care hospital from low income country. [Internet] 2016, May, 66(5),509-516 https://www.researchgate.net/publication/301657074_Impact_of_delay_in_admission_on_the_outcome_of_critically_ill_patients_presenting_to_the_emergency_department_of_a_tertiary_care_hospital_from_low_income_country

**Appendix**

1) Link for the Google questionnaire. https://forms.gle/DiRAFdqsZAyS67mKA