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TO STUDY THE UTILIZATION PATTERN OF DAY CARE SERVICES AT TERTIARY CARE HOSPITAL IN NORTHERN INDIA

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ABSTRACT

Introduction: Day care facilities in the hospital is a cost-effective, quality approach to patient care that has expanded rapidly in recent years. The efficient bed management is most important for better utilization of hospitals. Hospital utilization indices are sensitive indicators to find pressure areas and thus help in proper allocation of hospital resources and forming better healthcare policies for hospitals. **Aim and objective** of the study was to draw comparison between utilization of day care services in the OPD and indoor admissions by each individual department in hospital utilization indices. **Meterials and Methods:** It is a record based observational cross-sectional study conducted at a tertiary care hospital. Concerned data was collected from the hospital medical record section and entered in a pre-designed proforma. Trends of various hospital indices were analysed. **Results:** Study shows that maximum number of patients were treated on Thursday 841 and minimum on Saturday 113. Internal medicine has referred maximum 1241 patients for day care and only 35patients by renal department. In June month maximum 532 patients obtained day care facilities while it was only 473 in September. Fluctuations in bed occupancy rate (BOR), Average length of stay (ALOS), bed turnover rate (BTOR) and turn over interval (TOI) from May to September 2021. **Conclusions:** By studying the different indices, it was found that only six departments utilizing hospital day care service. It will help in formulation of revised standard operative procedures, strategies for admission and discharge, policies for quality care in ward management utilization of health facilities can be better by improving hospital information system, use of modern technology, providing clear-cut job description, and providing the clinicians with appropriate training may help alleviate the patient overstay and suboptimal utilization of resources in hospital.

KEYWORDS: Hospital utilization indices, Bed occupancy rate, Average length of stay, Bed turnover rate.

INTRODUCTION

Most of the rural people are fully dependent on government health care services most of the modern health facilities are concentrated in and around urban and semi urban area.[1,2] The availability of beds is perhaps the single most important factor in determination of the hospital utilization in a country. The day care facilities in the hospital have been in use for a long time. The earliest reference for day care surgery is mentioned as early as beginning of the 19th century by James Nicoll a Glassgow surgeon who performed almost 9000 outpatient operation on children in 1903. This setting was initially used for small surgical procedures.[3] However, over the next two decades, it lost its momentum .in 1960, the first hospital based ambulatory unit was developed. The potential for day care in a hospital has increased over the last few years. Success of day care can be attributed to advances in technologies and super specialization in the various fields of medicine.

Benefits of Day Care Are

The day care facility has been related with a large number of benefits to hospital and to the patients. Hospital can reduce its expenditure per patients; can provide optimum care with less number of beds, and the requirement of the manpower can be reduced substantially. The patient is benefited in the form of early return to home, less cost of treatment, no anxiety associated with the nights stay in hospital etc.

It can be summarized as below

- Cost containment,
- Availability of hospital beds for urgent care patients,
- Low rate of nosocomial infections
- Early recovery in home environment with the family,
- Less disruption of personal lives

However, in a country like ours, with the problems of financial constraints, insufficient grants for health care, lack of adequate money, and social factors, we are not

able to cash in on all advantages of day care surgery in our hospitals.

A 15-20% of all the operation are being done in USA in day care setting.[4] In USA a saving of 15-30% and in UK a saving of 40% in the cost has been reported with the day care surgery. The expenditure incurred by the civic authorities in india on a patient occupying a bed is around Rs.1000-2000/- per day. This does not take into account the drugs, medication and the material used for surgery. With the improvement in living standard the health needs and demands of the Indian population are bound to increase. With one of the least public sector spending in term of percentage of GDP, on the health, to provide the quality health services to 1170 million people will be a daunting task to the health care planners and service providers of the nation. This will not only require accelerated expenditure on the health services in the hospital area a few examples which should be used to its optimum level for providing good quality health care to the maximum number of people.[5] The health care facility utilization : The consumption by the community, of the patient care services provided by a health care facility, whether that consumption is warranted or not, is called utilization of services. Utilization of services is the fulfillment of the objective for which the services exists, and not necessarily of the organizational objectives, it is important to identify and reduce unnecessary or inappropriate hospital utilization can be defined as utilization which is not suitable to the patient's medical need.

Two types of inappropriate hospital utilization

- Over utilization
- Under utilization

Overutilization is care which is of no benefit to the patient (such as extra days at the end of a hospital stay, after the patient has recovered enough to go home) or care which could be provided in a lower-level, less costly setting (such as in a nursing home instead of a hospital or on an outpatient basis rather than as an inpatient).

Underutilization is care which is not sufficient in type, length, location, or intensity to meet the patient's medical need. For example, underutilization would occur when a patient who steel needs inpatient- level care is discharged. Patients who need services but do not receive them are underserved; patients why do not need services but receive them area overserved. Both under-and overutilization have implications for the cost and quality of care.

Relationship between need for Hospital Services and services Received

Importance of determinants

- Policy making
- Improving "equitable distribution of health care services"
- Improving appropriate utilization of services and discouraging or limiting their inappropriate utilization
- Benefits for the private sector.

People use health care services for many reasons: to cure illnesses and health conditions, to prevent or deley future health care problems, to reduce pain and enhance quality of life to obtain information about their health status and prognosis. Health care utilization can be appropriate or inappropriate, of high or low quality, expensive or inexpensive. The study of trends in health care utilization provides important information on these phenomenon and may spotlight areas that may warrant future in depth studies because of potential disparities in access to, or quality of, care. Trends in utilization may also be used as the basis for projecting future health care needs, to forecast future health care expenditure, or as the basis for projecting increased personnel training or supply initiative.

The health care delivery system of today has undergone tremendous change, even over the relatively short period of the past decade. New and emerging technologies, including drugs, devices, procedures, tests and imaging machinery hace changed patterns of care and sites where care is provided. The growth in ambulatory surgery has been influenced by improvements in anaesthesia and analgesia and by the development of non invasive or minimally invasive techniques. Procedures that formerly required a few weeks of convalescence now require only a few days. Health care utilization also has evolved as the population 's need for care has changed over time. Some factors that influence need include aging socio demographic population shifts, and changes in the prevalence and incidence of different diseases. As the prevalence of chronic condition increases, for example residential and community- based health- related services have emerged that are designed to minimize loss of function and to take keep people out of institutional settings. The survey / study can be of two types, one based on the episode, the other based upon the person. For example persons who visited a physician more than once or were discharged from the hospital more than once during the period of data collection would be included multiple times in the list from which the sample was drawn. Utilization rates per capita (or per population) represent the magnitude of health care use by a particular population and can be compared across various population group, but they cannot be used to examine the amount or type of care provided to individuals.

AIMS AND OBJECTIVE

Aim To Study the utilization of day care services in the OPD of tertiary care teaching hospital.

OBJECTIVES

1) To Study utilization of day care by different departments.

2) To draw comparison between day care usage and indoor admission by each individual department.

MATERIALS AND METHODS

Setting

Hospital have two day care facilities situated in OPD block.

Day Care one, having 15 beds is used by various departments like general medicine, skin etc for chemotherapy of their respective patients. There are three nurses posted in the unit permanently, the day care functions for 6 days a week. Nearly 550 patients are treated per week in this facility.

METHODOLOGY

The use of the day care facility was assessed retrospectively from the records of the facility.

The records were analyzed for.

- The departments that had used this facility.
- Type of patients using this facility.
- The type of procedure: It was found that the facility was used for therapeutic purposes only.

  The data was gathered for the total number of OPD patients treated in day care as compared to the number of indoor admissions made by the same department. The records of all the departments using the day care were studied to draw inferences.

Study Duration

The Duration was 5 months starting from May to September 2021.

Statistical analysis

Ratio and rates were calculated using descriptive statistics with Microsoft excel. Comparisons were made to draw inferences regarding the utilization of day care services.

Ethical consideration were taken from the concern authority.

No invasive procedure was planned for the cases of the study. The study was done on retrospective basis and identify of the patients was not breached in the study.

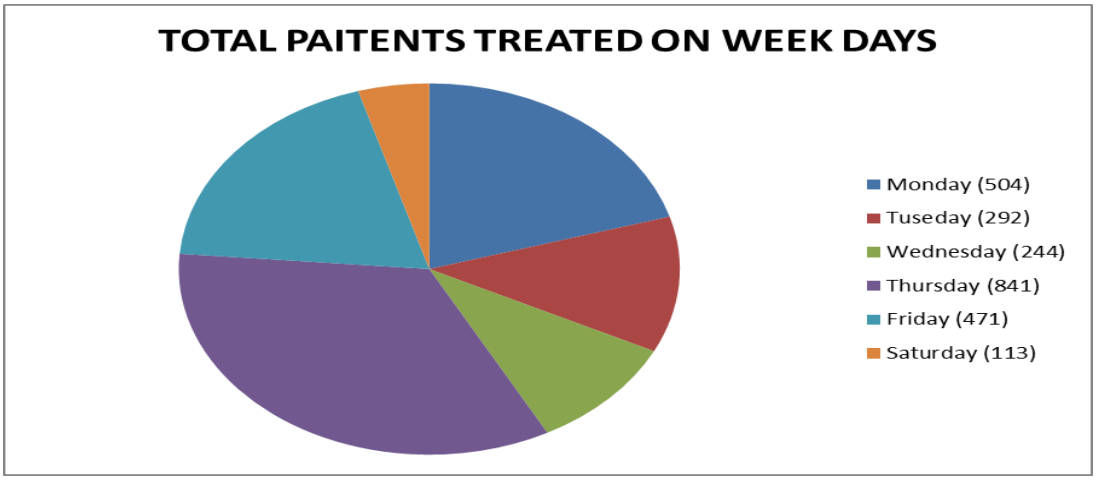
RESULTS

During the 5 months of the study period, day care facility was functional for 128 days. In this period there were 20 Mondays, 21 Tuesdays, 21 Wednesdays, 22 Thursdays, Fridays and Saturdays. The mean for the number of patients using the facility was 19.27 patients per working day. When the data was analysed for week days, it was found that the number of users were maximum on Thursday (mean for the number of he patients being 38.28 with the rang of 27-51 patients being 5.14 with range of 1-11 patients).

The number of beds in the facility are 16, thus the number of patients per bed were maximum on thrusday (2.39) and minimum on the Saturday (0.32)

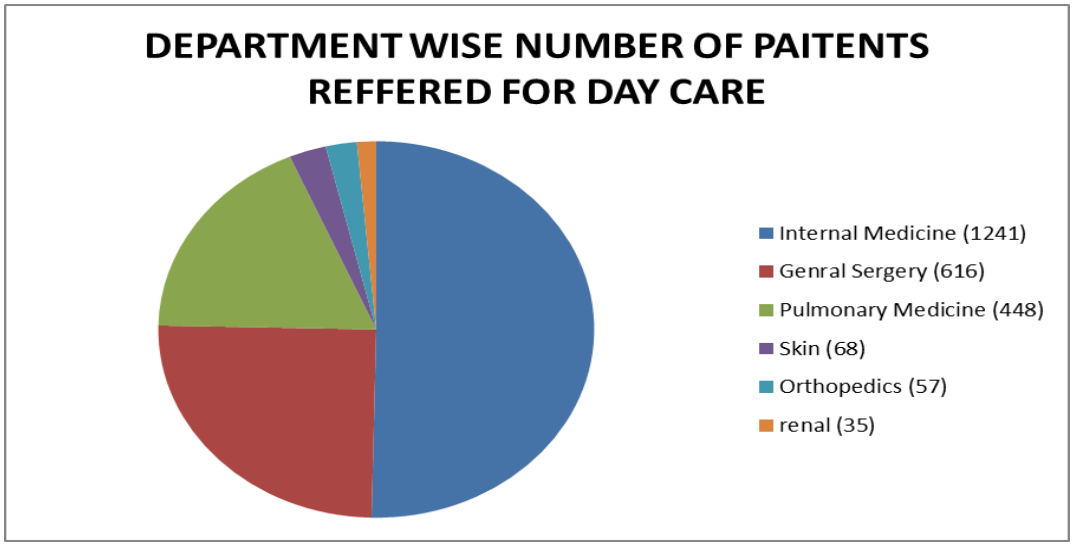
Week Days	Total Patients	Working Days	Mean Of Patient Per day	Range	Number of Patient per bed
Monday	504	20	25.2	14-33	1.57
Tuesday	292	21	13.19	7-24	0.868
Wedday	244	21	11.62	3-16	0.73
Thursdy	841	22	38.28	27-51	2.39
Friday	471	22	21.4	15-31	1.34
Saturday	113	22	5.14	1.11	0.32
Total	2456	128	19.26	1-51	1.20

On the average 1.2 patients were treated on each bed per day. The ratio was maximum for the Thrusday (2.39) and minimum for the Saturday (0.32).



Department wise use.

It was found that the medicine department was using the facility to a maximum extent. Number of patient referred for day care from general medicine were 1241, general surgery had treated 616 patient in the facility. Among the super-speciality departments, pulmonary medicine had referred 448 patients and renal clinic had referred 35 patients. The orthopedic department had sent 57 cases and skin department had referred 68 cases.



It was found that the medicine department is using it for mainly hematological problems mainly for lymphomas. Out of total 2465 cases, 1241 were medicine cases, and among these 1120 were treated in the day care for chemotherapy of hematological malignancies. The remaining 121 cases were suffering from non-malignant conditions. Among them 925 (82.6) were suffering from acute lymphoid leukemia (ALL), 189 cases were non Hodgkin's Lymphoma, 169 were multiple myeloma cases. Among the non malignant conditions there was no predominant condition and cases varied .From anaemia to Kala – Azar (Leishmaniaisis), SLE. In some cases no diagnosis was mentioned. The general surgeons were using the day care facility predominantly for the chemotherapy Of breast cancer. Out of the 616 cases sent to the care facility 598 (97.0%) were cases of Ca. breast. The department of pulmonary medicine was mainly using it for various kind of lung carcinomas. Out of the total 448 cases, 18 were suffering from non malignant conditions rest 430 (95.9%) were suffering from malignancies. In skin department out of total 68 cases, 38 (55.88%) had a diagnosis of pemphigus vulgaris.

In the department of orthopaedics, out of the 57 cases SLE was the diagnosis in 32 (56%) cases.

Rest of the cases were suffering from various collagen vascular diseases. In Renal clinic out of 35 cases 27 were suffering from acute or chronic renal failure. Rest were suffering from Anaemia to kidney Sclerosis. Percentage of OPD patients using day care. A total number 2,63,528 patient attended the new OPD during the 5 months of study.

Table to show Month wise OPD attendance & Day Care attendance of the patients.

Months	Number of OPD Patients	Number of patients attending the day care.	% of OPD patients attending the day care.
May	51141	481	0.94 %
June	53639	532	0.99 %
July	55830	491	0.87%
August	52423	488	0.93%
September	50495	473	0.94%
Total	2,63,528	2465	0.94%

Number of the patients attending the day care facility during the same period were 2,465. In percentage term it was 2465 x100/2,63,528 = 0.94 %. The percent was highest for the month of June at 0.99% and was lowest for the month of July at 0.87 %.The number of patients attended by the medical and surgical OPD during the same period were as shown below in table.

Department	Total OPD attended by the department	Total number of admission	Total day care by the department.	Day care to OPD ratio.	Day care to indoor ratio.
Medicine	43529	1333	1241	2.85	100:93
Surgery	23490	1708	616	2.62	100:36
Dermatology	21424	228	68	0.32	100:29
Pulmonary Medicine	7121	311	448	6.29	100:144
Renal	6907	657	35	0.50	100:5
Orthopedic	35619	1257	57	0.16	100:5
Total	1,39090	5494	2465	1.7	100:45

The number of the patient attended by various OPD are shown in the table above.

DEPARTMENT WISE USE

It was found that the department of medicine was using the facility to a maximum extent. Number of patient referred for day care from general medicine were 1241, the general surgery had treated 616 patient in the Facility.

Among the super specialty departments, the department of Pulmonary Medicine had referred 448 patients and Renal Clinic had referred 35 patients.

The Department of orthopedics had sent 57 cases. Among the other department skin had referred 68 cases.

DISCUSSION

The day care facility is a cost effective and good quality method of health delivery. In India the health is considered as sellers market. The facility utilization is determined by the treating doctor and not by the patients. The facility is available for the public on all the working day of the year even on the Gazetted Holidays (except on 6 days which are OPD holidays as well.) The mean number of the patients treated per bed are 1.20 which is quite satisfactory. The maximum number of patients per bed per day were on Thursday 2.39 and mean for the number of the patients on the day were 38.28 with range of 27-51.The minimum number of the patients were treated on the Saturday, mean being 5.2 patients and the number of patients per bed being 0.3.

The department of medicine have used the facility to the maximum extent. Out of the 2465 patients treated in this facility, 1241 were from the medicine department, and 616 were sent from the department of surgery, 448 were from the pulmonary department. Our findings are similar to Thapa V et al who also reported 75% of BOR in his study and higher than Ravi Kiran E et al and Vaz FS et al (60% each).[6,7,8] Anand TR in his treatise on hospital services and management considered BOR of 80-90% as optimal.[9] Rest of the patients were sent from the department of the renal, Orthopedics and the skin. Only 6 departments are using the day care facility presently. The other departments can also be increased to use the facility so that the potential of the day care can be optimally used.

It emerged from the study that, the ALL was responsible for the 82.6% of the cases from the medicine department. While the Ca. Breast was responsible for the 97% of the cases from the surgery. Ca. Lung and Ca. Bronchus combined was responsible for 95.9% of the cases in pulmonary department. Among the department of skin, P. Vulgaris was the diagnosis in 55.88% cases and SLE was the diagnosis in orthopedics patients. Renal failure was the diagnosis in 77% of the renal department cases.It can be deduced that the departments which are using the day care facility more vigorously, have identified some single major disease or similar type of the diseases for which they are using the day care more efficiently. It was found that five diseases (All, Ca Breast, Ca. lung, Non Hodgkin's Lymphoma and Multiple Myeloma) are contributing to the 93% of the day care utilization. The department of medicine have almost doubled its capacity to provide nursing care to the needy patient through the use of the facility. It have admitted 1333 patient for the indoor care during the same period it have send 1241 patient for the day care facility utilization. The ratio of indoor patient to day care utilization was 10:9 for the medicine, 10:4 in surgery, it was maximum in the department of pulmonary medicine and was 10:15. In rest of the departments it was 10:3 for dermatology, 10:0.5 for renal and 10:0.5 orthopedics. If we presume that in the absence of the day care facility all these patients would have to be admitted. Then it can be said that the department of pulmonary medicine would have required 2.5. time the number of bed it have today. And department of medicine would have required 2 time the number of beds it presently have. Although the comparison is not perfect or even good because the different case mixes would have effected the ALS of the department in a unpredicted way(most probably a reduction of the ALS) but in the absence of any reference it have been used as a proxy indicator. It emerged from the table that the day care utilization is consistent comparison to the OPD attendance. It was 0.94% of the OPD Attendance for the study period. It was maximum in the month of June(0.99%) and minimum in the month of July (0.87%). Also regarding seasonal variation we found that BOR and BTOR is highest in months of rainy season. This is obvious as in rainy season water borne diseases are more prevalent in the community so more patient come to hospital and also as these diseases recover fast, so BTOR is also high in these months. But Ravi Kiran E et al found BOR more in months from

January to March while Haider S et al during May to July.[10,11]

CONCLUSION

Being a government tertiary care hospital people are coming to hospital for seeking health care and the hospital also providing good services to them. But in certain departments where BOR is very high require allocation of extra beds. Also month by month department-wise analysis will help to find high patient load spots and better allocation of hospital resources for betterment of community health. Patient's satisfaction regarding health care provided by the hospital needs to be evaluated. By studying the different indices, it was found that only six departments utilizing hospital day care service. It will help in formulation of revised standard operative procedures, strategies for admission and discharge, policies for quality care in ward management utilization of health facilities can be better by improving hospital information system, use of modern technology, providing clear-cut job description, and providing the clinicians with appropriate training may help alleviate the patient overstay and suboptimal utilization of resources in hospital.

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