Analysis of the Bed-Occupancy, Utilization and Turnover Rate of Acharya Vinoba Bhave Rural Hospital, India

Abstract:

Background: Hospital expenses in healthcare system are the key component of health care. For this reason, investment is the main objective of increased expenditure in healthcare sector, expertise. As a developing country, India has had in order to face many economic and political difficulties. For administrative department as well as policy makers of hospital there is a big question of improper exploitation of hospital assets. This improper utilization is mainly affected by three factors which are patients related, administration related and physician related problems. Social and financial position of patients is responsible for inappropriate utilization of beds and it is considered as patient related factor. This study aims to assess the Bed-Occupancy, Utilization and Turnover Rate, assess problems in utilization and recommend the measures to improve.

Methodology : This will be a Record based cross sectional retrospective study conducted at Acharya Vinoba Bhave Rural Hospital, Wardha. Data will be gathered from the AVBRH medical record section.

Results: Indices for Bed occupancy rate, average length of stay, Bed turnover rats will be obtained. Data will be analysed with appropriate statistical tests.

Conclusion: Causes for underutilization, low bed occupancy and turnover rate will be revealed and necessary improvement measures will be recommended.

Keywords - Average length of stay, Bed utilization, Bed Occupancy rate, Bed turnover rate, Quality of Healthcare, Clinical Audit, Expenses.

Introduction –

Hospital expenses in healthcare system are the key component of health care. For this reason, investment is the main objective of increased expenditure in healthcare sector, expertise. As a developing country, India has had in order to face many economic and political difficulties. One of the most valuable the population boom is worrying. India's population continues to be increase at an unprecedented pace that leads to a rise in commodity and commodity prices, which results in lack of access to resources for all communities. Hence it is obligatory to use the available resources at the fullest with the limited or no wastage. Hospital beds are the most important healthcare resource. The allocation of beds is mandatory for the effective and conservative treatment of patients. A well-organized hospital bed management is very important in achieving the benefits of ease of use of beds and thereby ripening of considerable financial profit to the hospital (1).

For administrative department as well as policy makers of hospital there is a big question of improper exploitation of hospital assets. This improper utilization is mainly affected by three factors which are patients related, administration related and physician related problems. Social and financial position of patients is responsible for inappropriate utilization of beds and it is considered as patient related factor. Patient related factor affects very badly to the

hospital revenue as this factor reduces the flow of patient to the hospital. The lacks of training, heavy duty hours, fear of law suits, clear cut job description are the physician related factor which affects the proper working of the physicians which becomes the most hazardous factor. Fruitless hospital information system, prolonged admission and discharge process, inadequate policy assurances are administrative factor which influenced the inadequate utilization of hospital beds. There are two prediction of utilization of hospital bed i.e. over utilization and underutilization. Over utilization means using hospital resources at their optimum level which does not gives benefits to the patient as it might be the result of lengthy stay of patient after his/her recovery. Hence this will cause the patients dissatisfaction and affects the image of hospital. Underutilization of hospital beds refers to use of hospital resources at very low rate it will cause a loss to the hospital returns and dissatisfaction to the staff and administrative units of the hospital (2).

Healthcare is the biggest industry in India, both in terms of sales and deployment. Hospitals medical supplies, experimental trials, outsourcing, telemedicine, health check tourism, health assurance and medical tools are part of healthcare. Due to its strong coverage, services and rising investment by public and private players, the Indian healthcare industry is growing at a rapid rate. The Indian healthcare delivery system is divided into two main public and private component. The competitive gain of India lies in its wide team of well-trained medical professionals. Compare to its nobles in Asia and western countries, India is also cost efficient, the cost of surgery in India is around one-tenth in US or Western Europe.

A hospital bed is an expensive tangible asset in healthcare commodity. The availability of beds is possibly the single most important factor in deciding the usage of hospitals in the country. The definition of hospital usage refers to the way a particular group uses its hospital services at the highest level. However in our country, the definition of hospital utilization statistics is somewhat unknown. The statistics on hospital use are also known as statistics on patient movement. Indices of hospital use can include trends and pattern of hospital use (3). These are:

1. Average length of stay (ALOS)
2. Bed occupancy rate. (BOR)
3. Bed turnover interval (TOI)
4. Bed turnover rate (BTR)

The seasonal data for the determination of hospital usage indices will include these measures. It never alters the facilities and services provide by hospital to its patients. The quality of service, the way of treatment as well as other resources will remain constant and their might be some improvement which promotes the efficient and effective services of the hospital. By these indicators, we can recommend and set up our self to meet up the necessity of the society (3) (4) (5).

1. Average length of stay –

   The average length of stay in hospitals (ALOS) is often used as a measure of efficacy. All else being equal, a shorter stay would decrease the cost per discharge and transfer care from hospital to less costly post-acute strings. However, shorter stays tend to be more intensive and more expensive per day in terms of operation. Too short a period of stay may also have detrimental effects on health outcomes or decrease patient satisfaction

and recover. This leads to higher rate of readmission; costs per disease episode can drop only marginally, or even increase.

The average duration of stay refers to the average number of days in the hospital for patients. It is normally determined by dividing the total number of days spent by all patients over one year by the number of admissions or discharges.

- Average length of stay (ALOS) = H / (D + d)

  H = Total number of inpatient bed-days in a year/month

  (D + d) = Number of discharges and deaths in the same year/month

2. Bed occupancy rate – the bed occupancy rate is the metric for the hospital financial year the occupancy rate for inpatient beds is the proportion of official's beds occupied by inpatients for a given period of time.
   - Bed Occupancy Rate (BOR) = (N / B) x 100

     N = Summation of daily census in year

     B = Total number of beds

3. Bed turn over intervals – it is the normal duration of days for which a hospital bed remains empty until a new patient occupies it.
   - Bed Turnover Rate (BTOR) = (D + d) / B

     (D + d) = Number of discharges + deaths for year/month

     B = Total number of beds
4. Bed turnover rate – bed turnover rate is a measure of the use of hospital beds, which involves the number of times that occupants of hospital beds (3) (4) (5).

Bed utilization -

In the form of OPD Patient, IPD Patient, Emergency Patient, Surgery, Pathology Investigations, Radiology Investigations the patient comes to the hospital for treatment. The patient who wants admission is admitted to the hospital and we need beds for admission. In that case, if there are no beds available for hospital admission, we state that beds are not available, but at the same time when the patient is admitted to ward or day care, which is bed occupancy. Well-organized bed management is mandatory for suitable utilization of hospital resources and maintaining good image of hospital. (5)

Indeed, bed shortages are a huge problem in India, given that the average bed population ratio is 6.8:10000. In addition, the cost of having a new bed available ranges from Rs. 50000 to Rs. 100000, and there are additional preservation costs to be determined as well. The underutilization of hospital services further compounds the insufficiency of beds. Efficient bed management therefore not only allows to some degree to build up for the shortage of beds, but also contributes to substantial financial renumbering in its wake. In addition to these environments, it is somewhat obvious that hospital managers are in desperate need of objective steps and strategies to optimise the use of their insufficient resources, including hospital beds. It is with this purpose that this paper aims to examine the various indices of hospital bed utilization. According to bank data of 2011, the number of hospital bed per 1000 population including Government and private run hospitals in India was 0.7 while in developed countries like USA, UK it was 2.9 each. The average population served per

bed in a Government run hospital in 2013 is 879 in India while it is below the National average at 1213 in West Bengal as per the data of Chief Data Officer, Government of India (3, 4,5).

Considering that healthcare expenses as a percentage of gross domestic products (GDP) is growing, there is a substantial potential for improving healthcare services. Burden of diseases is evident from the Global Burden of Diseases Studies (6-9). Rural India, which accounts for more than 70% of the residents, is expected to appear as a latent source of demand. Over the next five to six years, India needs 600,000 to 700,000 additional beds, suggestive an US$ 25-30 billion investment potential. Given this demand for money, it is expected that the number of healthcare transactions will increase in the near future.

Methods -

Study Design - Record based cross sectional retrospective study.

Study setting - Acharya Vinoba Bhave Rural Hospital, Sawangi(M), Wardha, (Maharashtra)

Acharya Vinoba Bhave Rural Hospital is 1525 bedded teaching hospital located in Wardha District. It covers the patient from rural and urban regions.

Study period - 2 Months (1st January 2021 to 28th February 2021)

Sample size for data collection: Total discharge in given particular time.

Keywords – Bed utilization, Bed Occupancy rate, average length of stay, Hospitalization, Quality OF Healthcare, Clinical Audit.

Source of data – The data will be obtained from the Hospital Records.

Ethical issues – the ethical approval of the thesis is obtained by the ethical committee of Allied health sciences DMIMS (DU)

Expected Result –

By studying the different indices (Bed occupancy rate, average length of stay, Bed turnover rate) we can found the utilization of beds in AVBRH hospital which is the main purpose of the study. After that we can determine whether there is extra beds or we needs some more beds to treat the patients coming to the hospital. The final result will be concluded after the data collection at AVBRH about the utilization of beds from medical record department.

Discussion –

High bed occupancy rate requires allocation of extra beds. Seasonal variations are found in bed occupancy as in rainy season most water borne diseases spread in a community which may be leads to the hospitalization of patient for fast recovery. The bed turnover rate is high in these seasons and bed occupancy rate will also increases. Few of the related studies in this hospital setting s were reported (10-16). The cause of unfortunate bed use is heavy workloads and long duty hours.(17-24)

Conclusion

Conclusion will be drawn from the expected results.

Limitations –

- Time is the greatest limitation for this study.
- This analysis is carried out in a single medical centre (AVBRH), so the study cannot be accurately generalised.
- For calculation of daily bed occupancy of patients as admitted in day care will not be part of discharge patients list in next day.
- Accuracy of data is limited to the purpose and period of study.

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