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Role of Hospital Utilization Constants as Past Performing and Future Planning Markers

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ABSTRACT
In modern hospital management research we commonly face two problems. One is to use the hospital resources in optimum way and second is to prepare future strategy to serve patients smoothly. In this paper we emphasis the focus on describing common hospital utilization terms to make awareness in hospital practitioners and administrators. Hospital utilizations are the markers of hospitals to ensure the service, quality and the management providing by hospitals. The information about the hospital bed utilizations is important for establishing a framework of health services in any country. In this paper we try to emphasis that why and how the hospital utilization constants play crucial role to provide an optimum facilities to patients and why doctors as well as hospital administrators should be aware of these constants.
Key word: Quality,Hospital utilization constants, Optimum way.

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1. INTRODUCTION

In developing countries where the medical facilities are inadequate and the patients are still facing critical problems .Due to lack of doctors, nurses, and hospitals/nursing homes some common problems such as overcrowding may be seen. Over-crowding is perhaps the most common scene that people see in the Emergency department of a Hospital. The collection of meaningful data or facts is an important function of a hospital or clinic. Health related records are the primary source of data used in compiling health care statistics. The medical record department staff, therefore, may be responsible for the collection, analysis, interpretation and presentation of statistical data wherever possible inside hospital. Today, computerized systems automatically collect and calculate many of the statistics by the help of hospital software. To assess the hospital past performance and to remove various discrepancies and make reasonable and optimized future planning one should be familiar with the various hospital utilization constants. The hospital's function at the community level depends on the status it is given by policy makers. Performance assessments can provide managers with the information they need for evaluation and monitoring of the hospital's current status and activities1.Hospital utilization statistics are used as indicators not only reflect changes in the service provided by any hospital but also provide necessary data of seasonal variations. Now we will discuss some common hospital utilization statistics with simple examples,

1.1. Data

Data is the Collection of facts.

Broadly the data may be classified in two categories i.e. qualitative and quantitative data.

Quantitative data

The data on numerical or quantitative form is called quantitative data.

Ex. Average Length of Stay, no. of monthly deaths

Qualitative data

The data which can not be measured in numerical or quantitative form but we can be coded in numerical values. Qualitative variables are also called attributes which may be feel present or absent.

1.2. Variable

Characteristics that can take a different value.

1.3. Frequency distribution

Frequency distribution shows a variable that it can take different value and number of frequency associated with it .Ex. Frequency distribution of no of ophthalmic patients with different Average Length of Stay.

1.4. Ratio & Proportion

Ratio is a comparison between two numbers.

(No. of Male patients)/(No.of Female patients) =(x)/y

Proportion is a particular type of ratio in which denominator is whole part Ex.

(No.of Male patients)/(No.of total(male and female) patients) = x/(x+y)

1.5. Average

$$\overline{X} = \sum_{i=1}^{n} (x1 + x2 + x3 + \ldots + xn)/n$$

ALS	No. of patients
1	80
2	152
3	101
4	68
5	30
6	17
7	9

2. HOSPITAL UTILIZATION CONSTANTS

2.1. Admission

The formal process whereby a person is accepted by a hospital for the purpose of hospital treatment as an inpatient .If an inpatient is formally discharged from the hospital and then returns for further treatment, the admission process is repeated and a second admission is recorded in the statistics.

Live births in the hospital are considered inpatient admissions, but are always recorded. A newborn admission is deemed to occur at the time of birth in the hospital. Typically, a patient should be admitted as an inpatient if treatment and/or care is provided by hospital staff over a period of 24 hours.

2.2. Bed count (also called available beds or bed complement)

The number of beds (both occupied and unoccupied), set-up and staffed in an inpatient area of a hospital, which are immediately available to be used by inpatients

2.3. Bed count day

A unit of measure denoting the presence of an inpatient bed (occupied or unoccupied) set-up and staffed for use in one 24-hour period.

2.4. Daily census (daily inpatient census)

The daily census is the number of patients present at census taking time, plus any patients who were admitted after the previous census-taking time and discharged before the next census-taking time.

2.5. Delivery

The act of giving birth to either a living child or a dead fetus .A pregnant woman who delivers may have multiple births. For example, a woman who gives birth to twins will have one delivery but two births.

2.6. Encounter

The direct contact between a patient and a physician or other licensed independent medical practitioner, to provide medical/healthcare services for the diagnosis or treatment of a patient .

2.7. Fetal death

"Fetal death is death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles." WHO ICD 10: Vol.1, p. 1235-1236

2.8. Hospital patient

An outpatient or an inpatient to whom a hospital provides comprehensive care, including all necessary medical, nursing and diagnostic services.

2.9. Inpatient

A person who occupies a bed in a hospital for the purpose of hospital treatment/care

2.10. Outpatient

An outpatient is a patient who receives care without being admitted to inpatient or resident care.

2.11.Total length of stay (total discharge days)

The number of days of care rendered to a group of inpatients by a hospital from admission to discharge.

2.12. Total patient days (total inpatient service days)

The sum of all inpatient service days for each of the days during a given period.

2.13. Bed Occupancy Rate

The occupancy rate is a calculation used to show the actual utilization of an inpatient health facility for a given time period. For the occupancy rate to be a true utilization indicator, bed days available

must be calculated to correctly reflect changes in the number of beds available for use during the year.

BOR = (Total no. of Inpatients Service Days for a given period)/(Total no. of Inpatients Bed Count Days for a given period)×100

2.14. Bed Turnover Rate (BTR or TOR)

BTR is an important hospital utilization measurement .It measures on an average the number of times each hospital beds changes occupants. The turnover rate indicates the speed with which patients on any bed are rotated. Obviously the more complicate the case dealt with by the hospitals, the smaller the turnover rate. BTR = (Total no.of Discharges(including Deaths) for a given time period)/(Average Bed Count for the same period)

2.15. Turnover Interval (TOI)

The turn over Interval indicates that an average length of time (in days) that elapses between the discharge of one inpatient and the admission of the next inpatient to the same bed over any period of time. It means that on average days that a particular bed remains vacant.

TOI= □((Available staffed bed days – Occupied bed days)/(Total Inpatient discharges))

2.16. Average Length of Stay

The average length of stay as the name suggests represents the time the patient is retained in the hospital.

ALS= □ ((Total Number of Inpatients days During a period)/(Total Number of Discharges(Including Deaths)))

2.17. Outpatient / Inpatient Ratio

The Outpatient / Inpatient Ratio plays an important role to know how Inpatients service is being utilized in the hospital. It is defined as,

OP/IP=□((No of OP admissions)/(No of IP admissions))

2.18 .Live birth

"The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live born." WHO, ICD 10, Vol.1, page 1235

2.19. Maternal death

Death of any woman while pregnant, or within 42 days of termination of pregnancy, irrespective of duration and site of pregnancy, from any cause related to or aggravated by the pregnancy, or its management, but not from accidental or incidental causes.

Maternal deaths should be divided into two groups: WHO, ICD10, Vol. 1, page

(1) Direct obstetric deaths

Those resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium), from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above. WHO, ICD10, Vol. 1, page 1238

(2) Indirect obstetric deaths

Those resulting from previous existing disease or disease that developed during pregnancy and which was not due to direct obstetric causes, but which was aggravated by physiological effects of pregnancy. WHO, ICD10, Vol. 1, page 1238

3. ROLE HOSPITAL UTILIZATIONS AS PAST PERFORMING AND FUTURE PLANNING MARKERS

Hospital utilizations are the markers of hospitals to ensure the service, quality and the management providing by hospitals. The information about the hospital bed utilizations is important for establishing a framework of health services in any country. An attempt should be made to share the knowledge of these utilizing constants among medical doctors and hospital administrators. For example, if a doctor or hospital administrator found that the average length of stay of a particular department is too low but occupancy may be high, it means that the quality of services giving to

patients at this time is either poor or not meeting the quality expected by the patients. In this situation ALS may be a marker of past performing and future planning. Bed occupancy ratio reflects the popularity of the hospitals in terms of Inpatients. The level of occupancy also varies with the type of facilities available in the hospital. Usually larger the number of beds, the larger is the number of Doctors and other medical facilities also. The bed occupancy ratio, and in general, the utilization of hospitals is also set to vary with the medical facilities available in the hospitals. The bed occupancy rate varies seasonally. Many research works have been done to forecast the required number of beds in future.

The turnover rate indicates the time period for which a bed is occupied. As against the number of beds occupied which is indicated by the bed occupancy ratio, the turnover rate indicates the speed with which patients on any bed are rotated. Obviously the more complicate and traumatic cases dealt with by the hospitals, the smaller the turnover rate. Too large a turnover rate indicates that only simple first aid types of treatments are being provided by the hospital and need to provide. Too small a turnover rate would indicate fewer people utilizing the hospital and patients being unnecessarily retained on the premises. However in the case of hospitals dealing with chronic diseases like T.B. and so on, a low turnover rate is a must. The turn over Interval indicates that an average length of time (in days) that elapses between the discharge of one inpatient and the admission of the next inpatient to the same bed over any period of time. It means that on average days that a particular bed remains vacant. The high value of Turnover Interval of a hospital is not a good indication with regards of hospital quality. Since the lower utilization of hospital facilities represents low Turnover Interval

The average length of stay is a parameter similar to the turnover rate and both are inversely related. The average length of stay as the name suggests represents the time the patient received the hospital facilities .To construct a framework of future planning. This is a good indicator of the manner in which Inpatients service is being utilized in the hospital. In general, the number of outpatients should be broadly related to the number of inpatients. If a hospital is reporting very high number of out -patients as opposed to inpatients then obviously the type of inpatient care in relation to the demand for medical services is poor. On the other hand, a low outpatient/inpatient ratio would suggest that the services providing to inpatients are good.

4. CONCLUSION

In this paper we try to emphasis that why and how the hospital utilization constants play crucial role to provide an optimum facilities to patients and why doctors as well as hospital administrators should be aware of these constants. In this paper we conclude that above mentioned hospital utilization constants may be used as past performing and future planning markers

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