A STUDY OF BED UTILIZATION AT ALL INDIA INSTITUTE OF MEDICAL SCIENCES HOSPITAL, NEW DELHI

Thesis submitted to the Faculty of the All India Institute of Medical Sciences, New Delhi, in partial fulfilment of the requirements for the degree of Master of Hospital Administration.

On: 1976  
At: A.I.I.M.S., New Delhi  
By: Lt. Col. R.K. Rakshit

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SUMMARY, RECOMMENDATION & CONCLUSIONS

The present study was carried out to understand the dynamics of utilization of beds, to identify the possible areas for improvement to estimate the economics that could be effected without diluting the quality of patients’ care and to develop certain policies and procedures for the optimum utilization of hospital beds.

Dynamics of utilization of beds was studied retrospectively by observing the trend of expansion of bed-complements and their distributions, bed occupancy rates (BOR), average length of stay (ALS) and bed turn-over rates (BTR) over a period of 5-10 years. It was found that the information available from past records were scanty. In order therefore, to identify feasible areas for improvement and to estimate the economics, a prospective study of 266 patients was carried out in surgical ward of A.I.I.M.S. Hospital for a period of two and half months. The salient findings of the study are presented below:

1. The total number of beds increased by 65.2 percent during the period 1965 to 1974, whereas admission had gone up by 126 percent in the same period.

2. Except for the general surgical and medical beds variation of allocation of beds to different specialities, were only marginal increase/decrease during the period of ten years. Surgical and Medical beds had proportionately increased by 4 percent then the others.

3. During this period hospital had opened new units in Psychiatry, Radio-therapy, Paediatric Cardiology, Paediatric Surgery, Intensive Therapy, Therapy Unit, Respiratory Intensive Care and Dental Surgery.
4. There had been no change in the distribution of bed ratio of male, female and children.

5. The doctor-bed ratio in this hospital was 1.5 doctor per bed. Pre-clinical doctors and doctors not in direct patient care were also included while calculating the doctor-bed ratio. In General Surgery, doctor-bed ratio, for direct patient care was 1:3.5 beds.

6. The Nurse-patient ratio was 1 nurse per 2.5 patients.

7. During the period 1965-74, there was an increase in the number of out-patient attendance by about four times and indoor admission went up by over two times.

8. The bed occupancy rate (BOR) during the period 1965-75 remained between 85-96 percent except during the year 1968-69 when it was 72 percent.

9. The average length of stay (ALS) of patients during 1965-68 of 22.75 days gradually declined to 14.6 days in 1974. During the period of 10 years of study, the Department of Obstetrics showed the least average length of stay (6.6 days) the next highest being Department of E.N.T. (7.2 days).

10. In Surgery during the period of five years (1969-73), ALS of 42.6 days in 1969 in Orthopaedic came down to 28 days during 1973, ALS of 32.4 days in Thoracic-Surgery, 32.2 days in Neuro-surgery, 25 days of Urology and 22 days of General Surgery in 1969 came down to 28.5, 20.5, 23.9 and 16.9 days in 1973 respectively. On the whole ALS had a down-ward trend with slight elevation here and there.

11. In Medicine, during the same period (1969-73), ALS of 35 days in Metabolic disease, 32 days in Neurology, 25.4 days in General Medicine and 21 days in Cardiology in 1969 came down to 15.5, 16.5, 15.8 and 16.5 days respectively in 1973.

12. The bed turn-over rates increased from 20 in 1969 to 28 in 1973. In Neurology and Cardio-Thoracic Surgery, bed turnover had doubled during these five years.

13. 71.4 percent of the patients treated in A.I.I.M.S. Hospital during the period of prospective study were from Delhi, 19.3 percent from U.P., 1.5 percent from Haryana, 2.7 percent from Punjab, 1.8 percent from Rajasthan and the remaining 3.3 percent of the cases came from all other states including neighbouring foreign countries.

14. Bed distribution among the Surgical units under study was more or less uniform. Diagnostic distribution of cases in surgical units A, B, C were almost similar. Whereas ALS, Bed turnover rate differed from one unit to another.

15. Relationship of different variables pertaining to General Surgery in prospective study.
The average length of male patients were 14.6 days and that of female 13.2 days.

The length of stay varied according to the diseases, the type of Surgery and the unit under which patients were admitted.

ALS in Unit A was the lowest (11.2 days) and highest was in Unit E (20.5 days). BOR in these units were 87-95 percent highest being in Unit B and lowest in Unit D.

The ALS for operated cases was 15.2 days while it was 11.5 days for non-operated cases. 80 percent of investigations carried out in the indoor could have been done as outpatient and thus could have reduced the length of stay.

Patients who were admitted without prior investigations stayed comparatively for longer periods. More the number of investigations, longer was the stay.

34 percent of the patients had concomitant disease which had contributed towards the increased length of stay.

More the number of complications, longer was the stay.

Five out of total 266 cases were transferred in from emergency ward. Stay of these transferred in cases was shorter than the elective admission.

ALS was highest in Unit E followed by Unit D, Unit C, Unit B, and Unit A in that descending orders.

Minimum ALS with highest BTR in Unit A provided 92 percent of bed occupancy, whereas in Unit E highest ALS with lowest BTR, provided 90 percent of bed occupancy. The same type of heterogeneity was observed in other three surgical units also.

Total length of stay of each patients from the time of admission to the time actual discharge was divided into various components. Components observed in this study were not exhaustive. Since it was a single man’s study, few selected areas were studied with a view to understand as to how much each component contributed towards the length of stay and the extent to which each component could be shortened or altogether eliminated. The results of the prospective study of 266 patients in General Surgery pointed towards a number of areas for bringing about economy in the utilization of hospital beds. The minimum reduction that could be brought out in the days of stay by adopting unified administrative measures was found to be 484 out of 3750 patient days in 2 ½ months study period. Thereby the average length of stay of
all patients treated during the period of study could be shortened from the observed length of stay 14.12 days to 12.28 days.

19. The medical record section was much to be desired. Besides insufficient space for shortage facilities, the documents were mostly incomplete. It appeared the medical documents were never perused by unit heads for its fullness before despatching it to record section.

20. A well demarcated departmentalization of functional components were lacking.

21. Hospital did not have any written policies and procedures for admission, discharge, stay of patients.

RECOMMENDATIONS & CONCLUSIONS

The study revealed that the multitude of factors such as patient’s characteristics, unit characteristics and management characteristics play important roles in the effective and efficient utilization of hospital beds.

It is therefore, recommended that a high powered management committee named as Hospital Management Board should be formed which would be in a position to implement the effective and efficient control in the utilization of beds in a fairly large multi-disciplinary hospital (600 beds and above). This Management Board should be empowered with authority to take decision in the hospital short term and long term management policies and infused with dynamism in its concept to make a change in the anatomy of hospital administration. With the present day concept of team activity a functional management lay out for departmentalisation at A.I.I.M.S. Hospital is presented at the end of this chapter along with its Annexure.

Optimum utilization of hospital beds is the primary function of management. Based on the study findings the recommendations are made to the management in the succeeding paragraphs to optimise the utilization of hospital beds.

Hospital Management Board should set up a sub-committee suitably designated as task force committee which would recommended measures for implementing economy and quality control in the utilization of hospital bed. This committee should consist of following:-

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<td>President</td>
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<td>Secretary</td>
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The Task Force Subcommittee president and three other members should be nominated by the Hospital Management Board. President of the Sub-committee should include three other members from different functional departments of the hospital by mutual discussion.
amongst themselves. Chief Hospital Administrator should be the member-Secretary of the Sub-committee. The tenure of the members including President should not be less than one year. The Sub-committee should meet at least twice in a month or as frequently as deemed necessary depending upon the type and nature of task undertaken. Functionally the Sub-committee is recommendatory in nature and should have the authority to access and confidence from all operational departments of the hospital to make its mission successful. The functions of the Task Force Committee should be the following:

1. **Allocation of Beds** :
   Allocation of beds to clinical departments and their allied units should be based on periodic assessment of needs. This need can be yearly assessed, based on the ALS, BOR, BTR and BTI of respective disciplines of medicine. Any lacunae in the utilization of beds should also be high-lighted in its report submitted to HMB for final decision and subsequent execution.

2. **Policy Formulation** :
   a) **Admission** :
      Clear instructions for admission should be made in writing for both elective and emergency cases. For example : all elective Cases for admission should be registered in a discipline-wise register. Admission should as far as possible be made from the waiting list.

   b) **Investigation** :
      All elective cases should by and large be investigated in OPD prior to admission. Orders for subsequent investigations on admission should be written in the admission slip to avoid time lag between admission and order for investigation. A time-schedule procedure should be devised for collection of sample from patient and their despatch to laboratory and subsequent retrieval of the laboratory report in the unit of the concerned patient.

   c) **Discharge** :
      - Tentative length of all common ailments should be worked out. The committee should periodically (six monthly to start with) evaluate the program.
      - Procedure should be made to interview all patients by the Head of the unit on discharge from the hospital with a view –
        - To find out over-all patients satisfaction.
        - To find out any suggestions or complaints.
        - To explore possibilities of extending hospital care to home.
      - Procedure should be made so that attending physician/surgeon initiates section with regard to discharges after clinical assessment of the patient sufficiently in advance and inform the patient or his relatives.
      - Provision should be made for payment to indigent patient for his conveyance to return home without losing time in the hospital.

3. **Opening of Pre-anaesthetic check-up of patients prior to admission** :

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- Opening of Pre-anaesthetic OPD clinic for checking of all elective surgical patients prior to admission should be explored.

4. **Evaluation** :-
   - For an effective evaluation of bed-utilization, establishment of a good medical statistical information system is a must. A suggested monthly statistical report return proforma is shown in appendix-L.
   - The committee should visit areas of evaluation as and when deemed necessary and discuss the problem with the pupil concerned.
   - The committee should not recommended any punitive action but suggest corrective action for better utilization of resources.

5. **Cost awareness** :-
   - The committee should try to generate amongst the members of the various functional teams of the hospital an awareness towards the cost of the hospital services and an accountability to their team activities.

Finally it is recommended that constitution of a Hospital Management Committee (H.M.B.) and a Task Force Committee (T.F.C.) would go a long way in the implementation of the policies to bring about economy and quality improvement in order to fulfil the basis aim of providing efficient and effective medical care to large number of people it serves.