

Efficiency Of Bed Utilization By Class Type Using Barber Johnson Chart In RSU Imelda Pekerja Indonesia Medan In 2023

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ABSTRACT

One indicator of service quality in hospitals is the efficiency of inpatient services, especially in the use of beds. The efficiency of bed utilization can be seen from the Barber Johnson chart based on the calculation of Bed Occupancy Rate (BOR), Length Of Stay (LOS), Turn Over Interval (TOI) and Bed Turn Over (BTO). The initial survey conducted, medical record officers of RSU Imelda Pekerja Indonesia Medan have never analyzed the efficiency of bed utilization based on class type using the Barber Johnson chart. The purpose of this study was to determine the efficiency of bed utilization based on class type using the Barber Johnson chart. This type of research is Mix Methods. Primary data in this study are the results of researcher observations and secondary data data obtained from the medical records work unit and SIRS RSU Imelda Pekerja Indonesia Medan. Data collection in this study was carried out using interview and observation techniques. The results of the study were that the BOR value did not meet the Barber Johnson standard, namely class I inpatient rooms (48%), class II (38%) and class III (60%). The LOS value has met the Barber Johnson ideal value standard, namely class I inpatient rooms (4.2 days), class II (4.5 days) and class III (4.2 days). The TOI value still exceeds the Barber Johnson standard value, namely class I inpatient rooms (7.7 days), class II (8.7 days), class III (3.3 days). The BTO value in class I (28 times) and class II (25.5 times) inpatient rooms is still not in accordance with the Barber Johnson standard, while class III (43.5 times) is in accordance with the Barber Johnson ideal value standard. the meeting point on the Barber Johnson graph of class I, class II and class III inpatient rooms is still outside the efficient area so that the indicators of the RSU Imelda Pekerja Indonesia inpatient room are still not efficient.

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1. INTRODUCTION

According to WHO (World Health Organization), the definition of a hospital is an integral part of a social and health organization with the function of providing comprehensive services, curing diseases (curative) and preventing diseases (preventive) to the community. The calculation of the four indicators (BOR, LOS, TOI, BTO) can be depicted in the Barber Johnson graph. The Barber Johnson chart is used to determine the level of efficiency of hospital services and is one of the requirements for assessment by the Hospital Accreditation Team (KARS). (Hatta, 2010). RSU Imelda Pekerja Indonesia Medan is a type B private hospital and has been fully accredited which is located at Jalan Bilal No. 24, East Medan, Medan City, North Sumatra Province. The inpatient room at RSU Imelda Pekerja Indonesia Medan has 4 classes of care, namely VIP Class, Class I, Class II and Class III. The total bed capacity is 276 beds, with details of VVIP 5 beds, VIP 13 beds, class I 32 beds, class II 68 beds, class III 96 beds, ICU 11 beds, NICU 4 beds, PICU 2 beds, Perinatology 8 beds, Stroke Unit 6 beds, Burn Unit 7 beds and isolation room without negative pressure 24 beds. Calculation of hospital service indicator data has been carried out routinely, but Barber Johnson chart analysis has never been carried out for each class.

2. METHOD

The type of research conducted by the author is using mixed methods. Mixed methods use two or more methods taken from two different approaches to produce more comprehensive facts in examining research problems, because researchers want to have the freedom to use all data collection tools according to the type of data needed. While quantitative or qualitative is only limited to certain types of collection tools and data. Mixed methods research is a research approach that combines qualitative research with quantitative research (Creswell, 2010). (Creswell, 2010). This research was conducted in each inpatient class at RSU Imelda Pekerja Indonesia Medan which was held in July-September 2023. This study used purposive sampling. Purposive sampling is sampling using certain considerations in accordance with the desired criteria to determine the number of samples to be studied. (Sugiyono, 2018). Research informants include main, key and additional informants. The design of research informants used in this study consists of:

1. Key informants, namely those who know and have various key information needed in the research. The key informant in this study is the head of the medical records unit.
2. The main informants are those who are directly involved in the social interactions under study. In this study, the main informants are all heads of inpatient service rooms.
3. Additional informants are those who can provide information even though they are not directly involved in the social interactions studied. Additional informants in this study are the staffing and training sub-section and the planning and program development section.

Data Collection Technique Qualitative data collection methods, which are most independent of all data collection methods and data analysis techniques, are in-depth interviews, participant observation, documentary materials and new methods such as internet material search methods. (Bungin, 2013).

3. RESULTS AND DISCUSSION

Data Recapitulation in the Inpatient Room of RSU Imelda Pekerja Indonesia Medan Year 2022 To calculate indicators of inpatient services, data from the inpatient room is needed. The data is obtained from the Inpatient Daily Census (SHRI) conducted by nurses every day. Recapitulation of data in the inpatient room of RSU Imelda Pekerja Indonesia Medan, as follows:

Table 1. Recapitulation of Inpatient Room Data of RSU Imelda Pekerja Indonesia Medan Year 2022

No.	Grade Level	Bedding	Treatment Day	Length of Treatment	Patient Discharge Live	Die
1.	Class I	32 TT	4,686 days	3,791 days	876 patients	23 patients
2.	Class II	68 TT	9,573 days	7,846 days	1,716 patients	18 patients
3.	Class III	96 TT	21,834 days	17,335 days	4,066 patients	110 patients
	Total	196 TT	36,093 days	28,972 days	6,658 patients	151 patients

Source: Secondary Data of RSU Imelda Worker Indonesia Year 2022

Based on the table above, it can be seen that the highest number of discharged patients is in class III with the number of patients discharged alive and dead 4,176 patients with 21,834 days of treatment. While the least number of patients discharged was in class II with the number of patients discharged alive and dead 899 patients with a total treatment day of 4,686 days.

Indicator Data for Class I Inpatient Rooms in 2022 at RSU Imelda Pekerja Indonesia Medan

The indicator value can be calculated through the class I inpatient room data which can be seen from the class I inpatient room data of RSU Imelda Pekerja Indonesia in 2022 as follows:

Table 2. Class I Inpatient Room Data RSU Imelda Pekerja Indonesia Medan Year 2022

No.	Data	Total
1.	Bedding	32 TT
2.	Day of treatment	4686 days
3.	Number of patient discharges (H+M)	899 patients
4.	Length of stay	3791 days
5.	Period	365 days

Source: Secondary Data of RSU Imelda Pekerja Indonesia Medan Year 2022

Discussion

Data on class I inpatient rooms at RSU Imelda Pekerja Indonesia Medan in 2022, it is known that the BOR value of class I inpatient rooms 40% has not reached the ideal value, the LOS value of 4.2 days has reached the ideal value, the TOI value of 7.7 days exceeds the ideal standard and the BTO value of 28 times still does not reach the ideal value.

Indicator Data for Class II Inpatient Rooms in 2022 at RSU Imelda Pekerja Indonesia Medan

The indicator value can be calculated through class II inpatient room data which can be seen from the class II inpatient room data of RSU Imelda Pekerja Indonesia Medan in 2022 as follows:

Table 3. Class II Inpatient Room Data of RSU Imelda Pekerja Indonesia Medan Year 2022

No.	Data	Total
1.	Bedding	68 TT
2.	Day of treatment	9,573 days
3.	Number of patient discharges (H+M)	1,734 patients
4.	Length of stay	7,846 days
5.	Period	365 days

Source: Secondary Data of RSU Imelda Pekerja Indonesia Medan Year 2022

Data on class III inpatient rooms at RSU Imelda Pekerja Indonesia Medan in 2022, it is known that the BOR value of class I inpatient rooms 60% has not reached the ideal value, the LOS value of 4.2 days has reached the ideal value, the TOI value of 3.3 days exceeds the ideal standard and the BTO value of 43.5 times which has reached the ideal value.

Efficiency of Bed Utilization in Class I Hospitalization Room Using Barber Johnson Chart at RSU Imelda Pekerja Indonesia Medan

The value of BOR, LOS, TOI and BTO in class I inpatient rooms when compared to the Barber Johnson standard, only the LOS value (4.2 days) is in accordance with the standard, which is 3-12 days. While the BOR value of 40% is still below the standard of 75%- 85%, the BTO value is 28 times which should be ≥ 30 times. While the TOI value of 7.7 days is higher than the standard of 1-3 days. The higher the TOI value, the less efficient the hospital service.

The results show the efficiency according to Barber Johnson when a health facility by looking at the position against the field (area) of efficiency. Based on the results of the calculation of the four indicators of the efficiency of the use of beds in class I inpatient rooms, the Barber Johnson graph can be drawn as follows

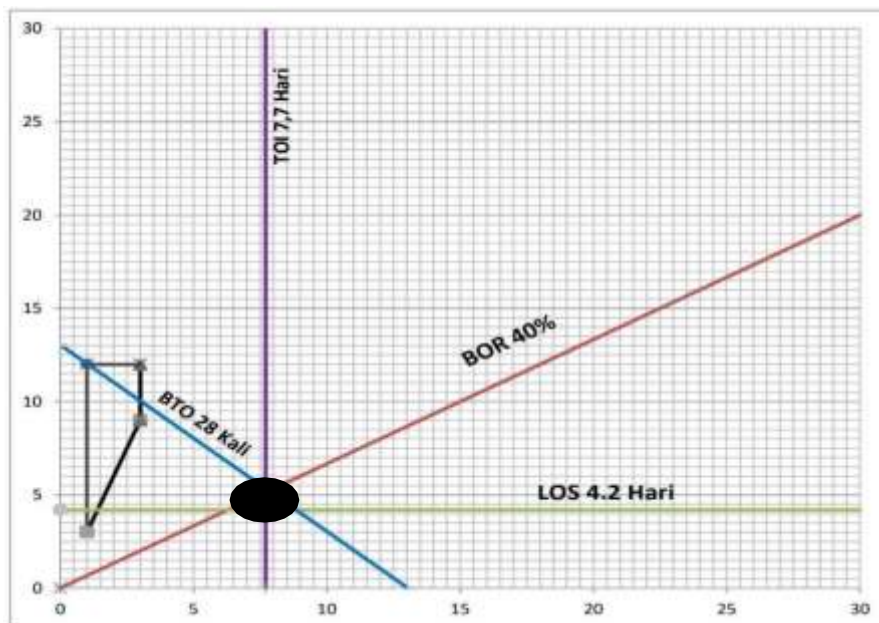


Figure 1. Barber Johnson Chart of Bed Utilization Efficiency of Class I Inpatient Rooms

Based on Graph 1 above, it can be seen in the graph that there are areas bounded by black lines as efficient areas. The TOI line (7.7 days) is shown by a purple line that cuts the x-axis (horizontal),

the LOS line (4.2 days) is shown by a green line that cuts the y-axis (vertical). The BOR line (40%) is formed by drawing a line from point (0, 0) to point (6,4) depicted by a red line. The BTO line (28 times) is drawn by drawing a line from point (13,0) to point (0, 13) drawn with a blue line. At the meeting point the BOR, LOS, TOI and BTO lines are still outside the efficient area, this shows the inefficiency of inpatient services in the room.

Efficiency of Bed Utilization in Class II Hospitalization Room Using Barber Johnson Chart in RSU Imelda Pekerja Indonesia Medan Year 2022

The value of BOR, LOS, TOI and BTO in class II inpatient rooms when compared to the Barber Johnson standard, only the LOS value (5.5 days) is in accordance with the standard, which is 3-12 days. While the BOR value of 38% is still below the standard which is 75%-85%, the BTO value of 25.5 times is also still below the standard which should be ≥ 30 times. While the TOI value of 8.8 days is higher than the standard of 1-3 days. The higher the TOI value, the less efficient the service in the room. Results that show efficiency according to Barber Johnson when a health facility by choosing its position against the field (area) is efficient. Based on the results of the calculation of the four indicators of efficient use of beds in class II inpatient rooms, the Barber Johnson graph can be drawn as follows:

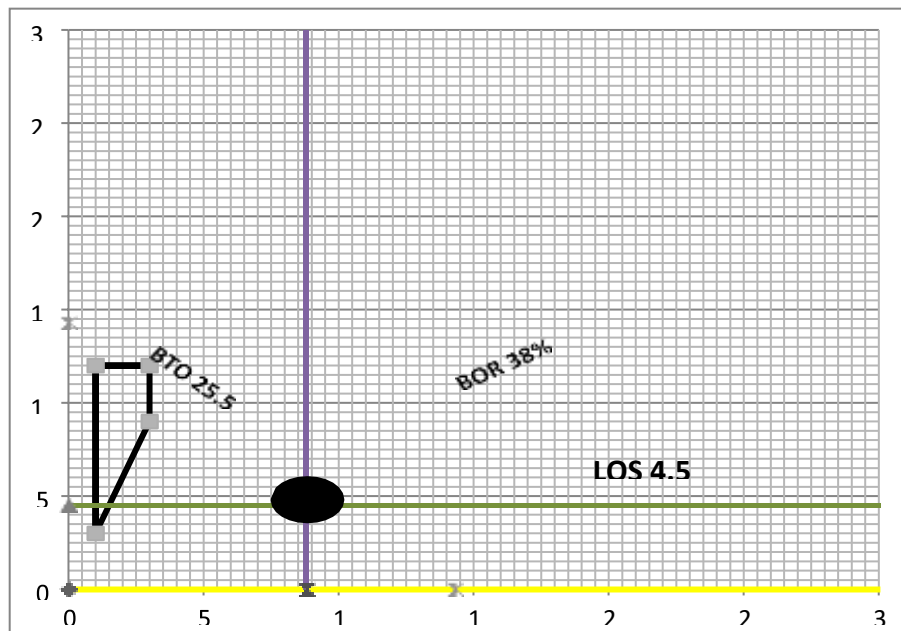


Figure 2. Barber Johnson Graph of Efficiency of Bed Utilization in Class II Inpatient Rooms

Based on Graph 2 above, it can be seen in the graph that there are areas bounded by black lines as efficient areas. The TOI line (8.8 days) is shown by a purple line that cuts the x-axis (horizontal), the LOS line (4.5 days) is shown by a green line that cuts the y-axis (vertical). The BOR line (38%) is formed by drawing a line from point (0, 0) to point (6.2, 3.8) depicted by a red line. The BTO line (25.5 times) is drawn by drawing a line from point (14, 0) to point (0, 14) drawn with a blue line. In the class II inpatient room, the meeting of the BOR, LOS, TOI and BTO lines is still outside the efficient area, this shows that inpatient services in the room are not efficient.

Efficiency of Use of Class III Inpatient Room Beds Using the Barber Johnson Chart at RSU Imelda Pekerja Indonesia Medan Year 2022

The value of BOR, LOS, TOI and BTO in the class III inpatient room when compared to the Barber Johnson standard, the BTO value of 43.5 times is in accordance with the standard, which is ≥ 30 times and also the LOS value of 4.2 days is in accordance with the standard, which is 3-12 days. While the BOR value of 60% is still below the Barber Johnson standard of 75%-85%, as well as the TOI value which is still slightly high at 3.3 days with a standard of 1-3 days. The low BOR value and high TOI value result in a lack of efficiency of inpatient room services.

Results that show efficiency according to Barber Johnson when a health facility by looking at its position towards the field (area) is efficient. Based on the results of the calculation of the four

indicators of efficient use of beds in class III inpatient rooms, the Barber Johnson graph can be drawn as follows

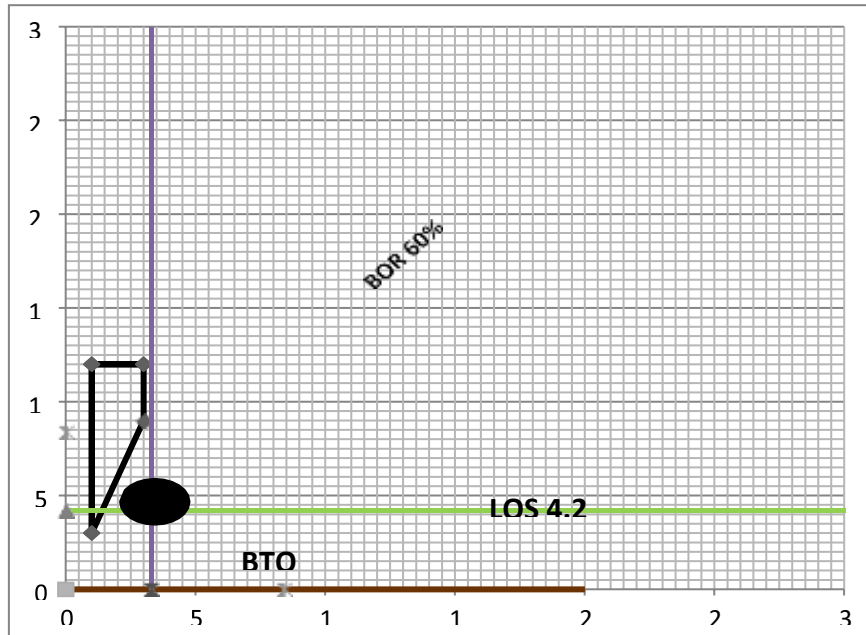


Figure 3. Barber Johnson Graph of Efficiency of Bed Utilization in Class III Inpatient Rooms

Based on graph 4.3 above, it can be seen in the graph that there are areas bounded by black lines as efficient areas. The TOI line (3.3 days) is shown by a purple line that cuts the x-axis (horizontal), the LOS line (4.2 days) is shown by a green line that cuts the y-axis (vertical). The BOR line (60%) is formed by drawing a line from point (0, 0) to point (4, 6) depicted by a red line. The BTO line (43.5 times) is drawn by drawing a line from point (8.4, 0) to point (0, 8.4) drawn with a blue line. shows the BOR value and the yellow line shows the BTO value. In the class III inpatient room, the BOR, LOS, TOI and BTO graph meetings are still outside the efficient area, this shows that the services in the inpatient room are not efficient.

4. CONCLUSION

Indicator value of inpatient room of RSU Imelda Pekerja Indonesia Medan in 2022: The indicator values of class I inpatient rooms are, *Bed Occupancy Rate* (BOR) 40%, *Length Of Stay* (LOS) 4.2 days, *Turn Over Interval* (TOI) 7.7 days and *Bed Turn Over* (BTO) 28 times. The value of class ii inpatient room indicators, namely, bed occupancy rate (bor) 38%, length of stay (los) 4.5 days, turn over interval (toi) 8.7 days and bed turn over (bto) 25.5 times. The value of class iii inpatient room indicators, namely, bed occupancy rate (bor) 60%, length of stay (los) 4.2 days, turn over interval (toi) 3.3 days and bed turn over (bto) 43.5 times. The BOR, TOI and BTO values of class I and II inpatient rooms of RSU Imelda Pekerja Indonesia Medan in 2022 are still not in accordance with the ideal standard value of Barber Johnson while the LOS value is in accordance with the ideal standard value of Barber Johnson. For class III hospitalization rooms, the BOR and TOI values do not match the ideal value of Barber Johnson, while LOS and BTO have met the ideal value standards of Barber Johnson. The Barber Johnson graph of class I, class II and class III inpatient rooms at RSU Imelda Pekerja Indonesia Medan in 2022 shows the use of inefficient beds because the meeting point of the four indicators of bed use in each class is still outside the efficient area. One of the factors causing inefficient use of beds in the inpatient room of RSU Imelda Pekerja Indonesia Medan in 2022 is the impact of the Covid-19 pandemic which makes people afraid to come to the hospital for treatment.

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